

PAGES

MISSING

It will never be possible to solve the problem of lighting and ventilating dwellings where houses are built in rows. The time is coming when, in this country, it will be considered a civic crime to build houses in rows, in which the only idea is to crowd as much dwelling as possible into as small a space as may be, paying attention only to the architectural adornment of the fronts.

—Harvey W. Wiley, M.D.

Power Commissioner for
Ontario and newly elected
President of the Canadian
Association for the Pre-
vention of Tuberculosis.

HON. ADAM BECK



SOME OF THE DELEGATES AT THE TWELFTH ANNUAL CONVENTION OF THE CANADIAN ASSOCIATION FOR
THE PREVENTION OF TUBERCULOSIS, HELD IN THE MARGARET EATON HALL,
TORONTO, MAY 20TH AND 21ST.



Dr. R. C. Paterson, Dr. J. H. Holbrook, Dr. Duncan Anderson, Dr. J. H. Elliott, Dr. E. N. Coutts, Major Lorne Drum,
Dr. F. Montizambert.

Dr. C. D. Parfitt, Mr. G. H. Laidlaw, Dr. C. H. Higgins, Dr. D. A. Craig, Dr. W. F. Shireff, Miss Dyke,
Dr. J. K. Gordon, Dr. Harley Smith, Dr. Chas. A. Hodgetts.

Dr. Geo. D. Porter (Secretary), Dr. P. H. Bryce, Sir James Grant, Prof. J. Geo. Adami (President), Mrs. Brereton,
Mrs. Mader, Mrs. Clutterbuck.

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Special Articles

DIET IN NERVOUS DISORDERS

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The astonishing neglect of the scientific method in the therapeutics of nervous disease is nowhere more striking than where diet is concerned. Grasset's work, bristling with references, devotes hardly a page, and that in only the most general way, to the subject of alimentation. Oppenheim's scattered remarks about diet are traditional merely, indicating that he has given no real thought to the significance of the subject. Of works in English the unsatisfactory nature must be known to all of you. It is true that a few scattered articles, more especially in the French literature, have drawn attention to the importance of a diet mainly of milk and vegetable products in persons supposedly predisposed to nervousness by a constitution which the French call arthritic and former English writers lithaemic. But since the work of Weir Mitchell I know of no important presentation discussing the role of diet in the management of the sufferers from affections of the nervous system.

Moreover, the conclusions of "Fat and Blood" were largely empirical and cannot be entirely endorsed in the light of our

better recent knowledge. The irrationality of forced feeding, even in tuberculosis, is established and the practice has lost favor. The idea of nerve starvation has been found only partially correct; for the defective activities of the nerve elements are now generally attributed not to deficient aliment, but to excess of waste products or other deleterious substances. That is to say, intoxication has become a dominant interpretation. I am not prepared to say how far the not infrequent success of the Weir Mitchell method can be accounted for on this principle; for the method, as you know, is one with many factors, and was applied to a variety of cases differing in pathogenesis. But many of the failures of the method may, perhaps, be accounted for by the presence of a toxicosis which none of the numerous precedures reached or which was, perhaps, even exaggerated by the abundant diet ingested. Of course, we are well aware that in depleted conditions, even when these are toxicogenic, large amounts of nourishment can be assimilated. Convalescence from wasting diseases is a familiar illustration.

Studies in metabolism have shown us how badly balanced is the diet of the average prosperous city dweller of our day. Excess of proteids and deficiency of carbohydrates, and sometimes of salines, is the rule. When the defenses fail, conversion of the proteins into the proper amino-acids is incomplete and the substances produced may act as nerve poisons. In these cases the caloric needs of the body may find better fulfilment in an abundant diet of carbohydrates within the limits of hepatic tolerance. An addition to the fats may also be beneficial within limits. Of the latter, those selected should be of low melting point, otherwise in neurotic patients, intestinal sand, a misnomer, for in reality the grains are soap, may form and a mucouscolitis appear. This, of course, connotes a wastage of the intestinal secretions used in saponification. The best fats are olive oil and butter fat. But the carbohydrates should be the mainstay as a rule.

Unfortunately too many of the modern consumer's carbohydrates are supplied in a form which emasculates from them substances of great advantage. It is a pity that experimental proof of this opinion has been lacking until recently, so that due weight was not given it by most physicians. Even then extensive clinical and laboratory investigation conducted in England recently to establish the relative merits of bread made from commercial flour and that from whole wheat, permitted of no definite conclusion; for attention was too largely confined to the caloric value of the result in bread. But that there is a substance of great importance for nutrition in that part of the cereal which is usually rejected in commercial preparation is now experimentally proved by the production of nerve degeneration in animals fed solely upon polished rice.

Almost in the nature of an experiment is the abolition of beri-beri in the compounds where coolies receive unpolished rice instead of the polished product under the consumption of which beri-beri prevailed. The former supposition that the disease arose from a fungus in the rice seems to have been disposed of by these experiments. Moreover, the substance which prevents the beri-beri, if we may accept the nerve degeneration in animals as of the

same nature, is separable from the rice polish by solution in alcohol and water, although its nature is not yet ascertained.

Further evidence that whole cereals contain a nutritive substance of importance for the internal secretions is furnished by Chalmers Watson's researches into the growth of the thyroid gland under different diets. He showed that on an exclusively flesh diet, thyroid gland of young rats underwent hypoplasia, whereas when oatmeal was the exclusive diet, the gland developed freely. The latter animals greatly exceeded in growth and capacity those fed only on flesh.

Although I do not know of experimental verification, it is legitimate to infer from the foregoing facts (as we know that an animal fed on carbohydrates alone emaciates and dies quickly) that a substance of great value to the nervous system in particular is removed in the milling of grains, and that this cannot be replaced adequately by the addition of flesh. Whether this substance exerts its action as a direct nutrient, or through the medium of the haemopoietic or other glands of internal secretion we do not know; but to the therapist, this is of less interest than the conclusion itself. For in the regulation of the activity of the nervous system the secretion of the thyroid gland is an essential. Many cases formerly designated neurasthenia and hysteria are now known to be merely due to changes in thyroid secretion.

Were one to speculate, it might be supposed that the prevalence in our day of hyperthyroidism expressed the response of this gland to a vascular environment which insufficiently supplies it with pabulum for the work the body requires of it: and that it responds by a secretion which makes up in abundance for what it lacks in quality, and thus inaugurates a vicious circle which maintains itself.

One cannot *here* enter into the qualifying factors of this hypothesis, those, for example, furnished by fear and anxiety in stimulating the thyroid secretion. (See *Mo. Cyclopædia*, May, 1912.)

Other important substances in the portion commercially removed from grain are calcium and the phosphates. Although these are present also in flesh, yet to obtain them in adequate amount from this alone would entail a greatly excessive ingestion

of proteid. The thoughtless appeal to the carnivora as an example of eubolism forgets that these animals eat the bones as well as the flesh. Now, the bran is the bone of the wheat, hence many modern diets lack enough of phosphates and of calcium.

Now, experiments have shown that calcium is one of the stabilizers of nerve activity, while potassium and sodium are its excitants. Phosphates are known to be a necessary pabulum of nerve. Is it not evident then that what clinicians call weak irritability must ensue when stabilizer and pabulum are deficient?

Deprivation of any necessary aliment leads to craving. The conscious expression of this may not be directed towards that which is lacking. It often expresses itself morbidly, such as in desire for alcohol, or in the peculiar longings of the gravid woman. It may manifest itself psychologically, as in the feeling of incompleteness of the psychasthenic.

Diet Against Arterio-sclerosis and Pressor Excess: A potent cause of nervous inadequacy is arterial hypertension. The role of diet in producing this seems to be important. Both purins and excessive nitrogen seem to lead to the formation of pressor substances. Whether they do so by increasing the activity of the adrenal glands is unknown: but it is an explanation to be thought of in connection with this state, which is so frequently found in late middle life. It is often misnamed neurasthenia.

When the renal in addition to the hepatic function is diminished, nervous symptoms as the result of an unwise diet are even more apt to declare themselves, so that the regulation of the diet then is of even greater importance. The commonly given milk as the basis of an adult diet is unwise. In the first place, the nitrogen content of cow's milk is disproportionate, and it is poor in iron and some other mineral elements. In the second place, it does not demand mastication and the relish which comes with this.

Psychic Surroundings Must be Favorable: This leads us to a most important matter in dieting against nervous disorders. As it is not ingestion but assimilation at which we must aim, all the factors which make for this must be employed.

Most important among these is enjoyment of the food. It must be cooked and served appetizingly. But even this is not enough: the psychological surroundings must be favorable. Dejection or anxiety are most detrimental to proper digestion. To corroborate this clinical opinion, we now have the experimental data of Pawlow. But we must avoid the other extreme of an excessive gaiety or cheerfulness during the meals of neurotic or excitable persons; for the mental activity thus stimulated is not the most favorable state for good anabolism.

Preparedness for Food: Exercise and Intervals Between Meals: The highest degree of preparedness for proper assimilation occurs only when the digestive glands are free from the incubus of a preceding meal. A loaded liver and an exhausted pancreas are not favorable. The rapid circulation and oxidation produced by active exercise are the best preparation for the proper assimilation of food. It should be evident that the frequent ingestion of food is detrimental to those persons susceptible to alimentary poisoning and its nerve inadequacy. By perseveringly stimulating proper oxidation a patient is soon able to tolerate in the stomach without fermentation a large enough meal to amply nourish him for a period of from four to five hours. The error of feeding oftener may be brought home by thinking of the modern practice which forbids even infants to be fed oftener than once in three hours. Prolonging the intervals is the best preventive of food fermentation.

Firm Foods Required: Causes of Bolting: Of course, some of the food at least should be of firm consistence, so as to demand vigorous mastication in order to stimulate salivation. This prevents the bolting of food, a habit to which nervously impulsive persons are liable. Sometimes this habit has been bred in childhood because of the child's haste to finish his meal in order to play. The acquisition of this habit is much facilitated by a soft or pul-taceous type of food such as is so commonly employed nowadays. To bolt a hard crust is impossible and a piece of tough meat most unpleasant. The habit of bolting food is part of a vicious circle, for it leads to malassimilation, which causes nervousness, which leads to impatience, which favors the bolting of food. The remedy, of course, is simple enough: it is to eat dry and hard

foods, or failing that, to master the weak impulsiveness which permits one to bolt.

Special Indications: Avoid Formulae: In prescribing special diets, rigidity should be avoided. A narrowly restricted diet may be felt monotonous and breed disgust, which may produce a psychogenetic dyspepsia in a susceptible neurotic. The patient should be explained the principles on which he must diet himself. If he is uninformed or unintelligent a list of substances may be given him in addition. But even then, the rationale of what he is to follow should be explained. The ready printed lists of certain text-books, specialists, and pharmacists are an abomination no better than the ready made prescription. Just as he who is trained in pharmacology will prescribe to fit the patient instead of making the patient fit an arbitrary prescription; so he who is trained in dietetics will diet each patient, and not make the patient accept an empirical list obtained from the fancied authority of some publication.

This does not mean the negation of all rules. I conclude, therefore, by considering some neurological conditions in the treatment of which dieting is essential to success, and by setting down the nature of the diet suitable to each.

The differences between the diets in these conditions are very small. This, however, only accords with the fact that the human organism as a biological unit functionates best when the various types of food which constitute its pabulum are proportionate to one another in a ratio which is pretty definite for the healthy human being.

Now, as pathological states only represent an organism's reaction to noxious influences the optimum diet for good health when in health is only rarely to be departed from. Even in diabetics, where this departure is perhaps the widest of all, the prognosis becomes favorable inversely as the necessity of departure from the carbohydrate standard of the normal human being. In adiposity, too, the fallacy of disproportionate abstention from carbohydrates and fats is now seen.

Diet for Epileptics: With this understanding then, consider in the first place the diet in epilepsy. I shall not consider such symptomatic epilepsies as arise

from coarse lesions of the brain or those which occur in cases of defective development; although even in these, favorable diet can mitigate the patient's lot. While we believe that epilepsy is fundamentally toxigenic, yet we do not know whether it is manifested because of increased cerebral susceptibility or whether it occurs because of weakened defenses against the absorption or neutralization of food toxins. Practically, however, it is clear that most patients are benefited and many cured if, before it is too late, a diet is imposed which minimizes the work of the metabolism of proteins, and more especially during the subsidence of the vital activities during sleep. This diet should, at the same time, facilitate rapid exchange by an abundance of the saline constituents of the diet.

Empirically, it has been known how favorable to such patients is an abundance of fruit and vegetables and a restriction of meat. But failures in the application of diet of epileptics occur unless other proteins than meat are not restricted also; and unless the fruits and vegetables are chosen for their saline quality. Thus, an epileptic fed upon potatoes, eggs and milk and tasteless fruits would be, perhaps, even worse off than one on the average mixed diet.

The diet I recommend is somewhat as follows:—

On rising, half glass of hot water containing 10 grs. Sod. Bicarb.

Breakfast.—Large plate non-acid fruit with cream, large plate cereal and milk, toast, no coffee, tea or chocolate.

Dinner.—No meat, soups or gravy, 4-oz. well-cooked meat or two eggs, large plate green or succulent vegetables, potatoes, not greasy. Sweets, no gelatine.

Supper.—Similar to breakfast; but macaroni or other p \hat{a} te, or rice pudding may be taken for cereal, and one egg may be taken also. Graham bread thrice weekly, or more. Distilled water to be taken freely between meals.

At Night.—Half glass hot water containing 30 grs. Potass. Citrat.

The chlorides of the average diet should be restricted. They are apparently harmful to those prone to epilepsy, for although the hopes aroused by the first recommendation of their deprivation have not been realized, yet many arrests of fits have oc-

curred under a salt-free diet. When it is remembered that a chlorine balance is well maintained by a daily ration of $1\frac{1}{2}$ grammes, that the amount in the usual diet is 10 grammes, and that where renal inadequacy exists, œdema quickly supervenes when the excretory capacity of the kidney is exceeded, it should be evident that reduction of common salt is a rational procedure in a disease where cerebral œdema has been found so frequently as 22% of cases operated upon. Some authorities attribute the comparative advantage of milk to its poverty in sodium chloride.

The Diet in Cases of Drug Addiction: The craving for morphine or alcohol has often a basis in metabolic disturbance due to a diet or manner of eating which, though usual enough and without apparent injury to the average person, is yet highly injurious to the person in question. I believe that relapses after successful sanitarium treatment are frequently due to neglect of this factor.

The Period Depressions and Excitements acyclothymic and Manic-Depressive Psychosis: The lack of more extensive data regarding the dietetic factor in these cases is regrettable. For the role of diet as the exciting cause, and the means of cure in the subjoined case is most impressive.

Recurrent Confusional Mania From Gluttony: The wife of a clergyman was seen at the York Retreat during my residence there in 1907. For several years, she had recurrent attacks of excitement, with rise of temperature, rapid pulse, disorderly acts, filthy ways, obscene language. These would occur at the menstrual period, but only every other month, and sometimes less frequently. Preceding and during the attack, the leucocytes in the blood were greatly increased. On one occasion, 37,000 to the cubic millimetre were found. During the subsidence of the attack, in about ten days, the count would be normal. Between the attacks, the patient might be regarded as normal; although her disposition was somewhat selfish and unreliable. No cause for her attacks had been discovered. The patient had been, two years before, placed upon a strictly vegetarian diet without any benefit; for the principles embodied in this article had not been duly considered in the prescription of the diet.

In the search for a cause, I one day minutely questioned a nurse concerning the habits of this patient, who on account of the freedom given her between attacks was not under continuous observation by any one. I was told that she spent her afternoons in passing from one pavilion to another taking tea in rotation with the nurses. On each occasion, she would eat abundantly of what was on the table, and this would go on most of the afternoon. Moreover, she would spend all her money on sweetmeats and often more substantial things, which she would eat during the morning, seldom offering any to another person.

From these data, I theorized that her maniacal attacks were the expression of the outburst of accumulated toxicosis due to her gluttonous habits. They were precipitated by the toxic wave of the menstrual period; but they did not occur every month because during the maniacal attacks the patient was practically starved, and insufficient time elapsed before the next menstruation to allow of sufficient accumulation to produce toxicosis.

Whether these were secondary effects of bacterial action, the defence against which was broken down by the excess of food, or whether they were purely biochemical in mechanism, we did not determine; for we were primarily concerned with practical therapeutics. The result fulfilled the expectations of the theory; for the patient's indulgence was prevented, the attacks ceased, she returned home, and my latest advice, a year ago, was that she remained well.

In a case of recurrent confusion with delirium referred by Dr. Heiberger, where saburral tongue was marked, improvement did not occur until the diet was reduced to one exclusively of abundant fruit and only three glasses of milk per day.

In another case of recurrent mental confusion referred by Dr. William Mason, improvement was *pari passu* with the reduction of nitrogen in the diet. Each time an increase was attempted, the confusion and delirium returned.

Nervous Dyspepsia: The majority of such cases, where organic changes have not been overlooked, are in reality mental or emotional in origin. They are phobias of hysterical or psychasthenic type usually. Hence, dietetic insistencies only aggravate

them. A wise psychotherapy teaches the patients to put their stomachs out of their heads. Stomach specialists are tempted to ignore this feature of such cases, which require a careful analysis of their minds rather than of their stomach contents.

Psychasthenia: The sense of incompleteness or inadequacy which is the basis of psychasthenic manifestations has often, I believe, other origin than the psyche. Even the *angoisse*, that prominent emotional characteristic, may not be psychogenic always.

A general uneasiness may be purely physical in origin. Cases where psychasthenia was provoked several times by caffeine is an example. Likewise is that of a child of two, I reported to the Society of Psychology of Paris, and later published in *Pædiatrics* here. I have noted several time recrudescence of symptoms in psychasthenia after errors in diet. Either starvation or excessive protein aggravate the symptoms. Of course they do not create psychasthenia; but they lower what Janot calls the psychological tension which thus permits the mental vagaries so characteristic of this disease.

The dietetic poisons of course are badly tolerated by such patients who should abstain from tea, coffee, cocoa, and alcohol, which not only disturbs nutrition, but interferes with neuronal activity.

Nervous Children: The difficult psychic management of the unstable child may be completely vitiated by want of care in very simple dietetic needs. Too frequent meals, too heavy a ration, excess of protein or extractives all subtract energy from the cerebrum where it is needed for discipline. Toxins and peripheral vitiations are not conducive to mental activity or emotional tranquility.

Hysteria: Although the disorders we term hysterical are purely psychological in origin, yet the hyper-suggestibility on which they depend varies greatly with physical states. Diet has a marked influence on these. In the psychomotor discipline against hysterisability, disturbances due to faulty diet are a great handicap. A case may well be ruined by failure of due attention, without which the best psychotherapy may be unavailing. Illustration is afforded in the cases I cite.

A case of hysterical spasm where psychomotor discipline was unavailing until a faulty diet was rectified has been recently reported by me in *Surgery, Gynaecology and Obstetrics*, and *Washington Medical Annals*, January, 1912.

A case where hysterical absences were much aggravated by lapses from a strict diet was that I reported in *International Clinics* in 1908, Vol. III. The moody behavior of this patient could be controlled by psychotherapy only when this was not interfered with by the handicap of neurones below the highest efficiency procured by what was the antithesis of that animadverted upon in *Loves Labor Lost*, when Shakespeare makes Fernando say, "Fat paunches make lean pates, and dainty bits make fat the ribs and bankrupt quite the wits."

Psychotherapeutic re-education demands the wit of patient as well as of physician. A psychotherapy which permits sick minds to become more so by leaning upon the suggestions of another is a poor thing.

When the energies are deployed toward metabolic disposition, large quantities of nutriment are unavailable for concentrated mentality. As an exalter of suggestibility feasting is as vicious as fasting. Of both means, the old religious organizations were well aware empirically in managing the devotees.

Hemicrania and Other Constitutional Headaches: Most of these cases appear to be toxic. It is certain that the vast majority are greatly ameliorated by diet which enforces the principles just described. Even when a psychogenic factor is manifest the bettering of an unfavorable diet may remove at least the headache from the sufferings of such patients.

An instance is that of a young woman whom I saw with Dr. J. S. Dye at *Chatanooga* in October, 1911. Headaches which apparently nothing could prevent were brought on by recurrent painful psychological situations beyond medical control. In spite of the continuance of these, the headaches were prevented after about two months of the special diet I recommended.

Perseverance, however, is often needed. Charles Mercier goes the length of saying that by faithfully following instructions for six months every case of metabolic headache is curable.

When the blood pressure is considerably raised the effect is particularly favourable. Such a case I saw with Dr. S. S. Gale, at Roanoke, November, 1911. A very stout middle-aged woman had suffered intensely for almost two years with constant and violent headaches. On account of her stoutness, carbohydrates had been restricted for some time. I advised, on the contrary, a restriction of the proteins. The consequence was vast improvement as regards headaches without increased adiposity.

Headache complicating other affections is susceptible of the same treatment. Thus,

a middle-aged woman referred by Dr. Davis, of Washington, for writer's cramp and who was cured by psychomotor discipline, as described in the *Journal die Neurologie und Psychiatrie* (Brodman; Tübingen), suffered also from periodical hemiparesis which interfered with her treatment. This was very rapidly removed by the proper diet I have described.

I have not, however, succeeded in curing every case, as Mercier believes possible; but perhaps my diagnosis has been in error when the treatment has failed, and an organic cause I could not detect has been present.

SOME SOCIAL ASPECTS OF TUBERCULOSIS

BY MRS. ADAM SHORTT,

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For the last fifteen years I have been connected with various philanthropic societies working in some way for the betterment of humanity and I am more and more impressed with the co-relation and inter-relation of the work, of most of our societies and organizations. Pre-eminently is this the case with the fight against tuberculosis. Everything that can be done to better conditions of living will lessen the spread of tuberculosis, and everything that is done in the anti-tuberculosis crusade will count by so much, towards the moral and physical welfare of the race.

It seems to me that if we eliminate the scientific study of bacilli, of pathological conditions, and of curative cultures, that the study of the social problems which produce, propagate and perpetuate tuberculosis will cover all the rest of the field.

The social aspects of tuberculosis would involve a study of heredity, eugenics, alcoholism, the feeble-minded and insane, as well as industrial conditions, immigration, climate, maternity (infant mortality), the meat and milk supply, and the housing problem.

The study of heredity has long been a fascinating one to scholars and alienists, but very little practical use has been made of the knowledge. Recently that phase of it called eugenics has come more to the forefront, and now Mr. Balfour has

founded a chair on the subject at Cambridge University. Let us hope that there may be some practical results other than those in the study and the laboratory. Another promise of things to come is the bill recently brought up in our Ontario Legislature by Dr. Godfrey, which aimed at preventing marriages dangerous to society.

Heredity, we all agree, is the deciding power in the make-up of the human. But biologists tell us positively that we cannot level up, and that invariably the race levels down. For instance, a feeble-minded father and a normal mother, or vice-versa, are never known to have a family of normal children, *i.e.*, up to the level of the normal parent. Invariably some or all of the family will be defective, criminal, or insane. Even when one or two members seem to have escaped the blight, some of their children will give evidence of the inheritance.

Should it not be the right of every child to be well born? Surely it is of more importance to have some regulation of grade in our human stock than in our horses and cattle. We spend a thousand dollars to train the intellect of one child and yet make no laws to prevent his being born without one. Future generations may well wonder why we took such infinite care in the production of good domestic animals

and so little in the culture of humanity.

The study of the history of degenerates goes to show that alcoholism in the parents predisposes the children to tuberculosis and insanity. Alcoholism does this by direct influence on the children in giving them less resistance and indirectly by providing the environment which hastens physical and moral degeneracy.

The outcome of the entire neglect of eugenics and heredity as a practical subject has resulted in creating one of the largest problems that weighs on our civilization to-day, the problem of the feeble-minded.

In Ontario we have a thousand of these unhappy humans at large, while Britain has 150,000, and other countries in proportion to their care and neglect. Do we want to delay until the problem becomes too big to solve, as seems to be the case in Britain.

We cannot begin to estimate the amount of levelling down that is going on in this young country by the absolute disregard of the propagating and repropagating of the unfit. Nothing seems to be flagrant enough, big enough in this respect, to produce an impression that will result in adequate control of the increase of this class. Even the story of Ada Jukes and her thousand criminal descendants fails to do more than create a horrible picture that seems to pass like a nightmare and with no more lasting results. Royal Commissions have been formed which have reported on conditions and numbers, causes and cures, and yet nothing much comes of it. Provincial Cabinets are bombarded by requests from many organizations, from many parts of the country to build institutions and provide farms where these unfortunates may be made to a certain extent, self-respecting, self-supporting units of society, instead of being a misery to themselves and a moral and physical danger to the community.

Yet in all Canada we have no special institution for this much-needed work. An initial step was taken some years ago in obtaining statistics as to numbers, and information as to commitment and control. Since then we have an illuminating blue book each year on the subject. But in seven years a great many defectives have been added to our population who will add

to our burdens in jails, asylums and Homes for Friendless Women.

True, an experiment has been made in the Industrial Refuge and the Haven in Toronto, where some 90 or 100 are under control. But the very success of this experiment, and it is a success, by so much the more condemns the authorities for failure to provide like institutions in other parts of the country for the estimated other 900 still wandering at large. Nor is all said when this is accomplished, for there is that other contingent just above the border line which will still complicate the question of tuberculosis and other social problems.

The initial step towards right bases of action in the prevention of tuberculosis is to have thorough and complete medical inspection of school children. Children often have latent tuberculosis. Being susceptible and nearer the ground they are in far more constant danger of infection from dust, from sweeping, from long skirts and from every other cause. In 45 cases of removed tonsils and adenoids seven were found infected. Anemic children and those who react to the tuberculin test should be taught in outdoor classes, which would prevent them breaking down under the ordinary school routine and would enable them to derive proper benefit from the money spent on their education and give them a chance of a sound mind in a sound body. Medical inspection of schools would also enable the defective-minded to have a fair chance to develop what was in them by placing them in special classes, which should be followed up by continued guardianship if they were found incapable of development.

While it is a conceded fact that tuberculosis prevails to an alarming extent in institutions for the insane the question has not yet by any means been worked out to its ultimate solution as to the relation of predisposition and cause. It has been stated that the child of tuberculous parents brings with him into the world a general vitiation of his humours and cells which renders him liable to defective-mindedness or insanity. Dr. Klebs states that tuberculosis in asylums is most frequent in what he calls the untidy wards, where stupidly demented patients are in close proximity and in the same posture, for hours at a

time, and are quite irresponsible as to what they pick up or put in their mouths.

When this frequency of tuberculosis can occur among these demented cases under the constant supervision of institutional life, what shall we say of the menace of the thousands who are irresponsible in less degree and who go in and out among us breeding and carrying disease and degeneracy.

Tuberculosis has been called a disease of the working classes, but this is not so much because of work as conditions. Work in the field, however hard, gives no alarming statistics of morbidity. Industrial trades, where there is organic, mineral, or metallic dust, produce heavy death rates from tuberculosis. Our Departments of Labor, the study of Industrial problems, and our Trade Unions have improved some aspects of labor and no doubt will improve them further.

Workers in shops and factories, where numbers of workers are herded together, are exposed to the usual dangers of overcrowding, often increased by the presence of gaslight and dust and the absence of sufficient air, sunshine and cleanliness.

It is obvious that there should be medical inspection of all workshops, factories and other places where numbers of people are working together. It would give the detected case a chance of cure, and it would prevent the spread of the disease to the co-workers. It would also be a quick educative way to more hygienic conditions in these places. As a rule, tuberculosis claims a higher toll from men than women and from workmen than any other class. It is because of this and the fact that mortality from this disease is greatest between the ages of 15 and 35 years that the economic loss is so great. This economic loss is produced by raising children to die at the beginning of their productive years, the inability to labor of those afflicted with disease, the loss of wages of those who die before the wage-earning years are over, and the cost of the care of the sick.

The Immigration question is also a practical issue in affecting the spread of tuberculosis. True, the Federal Government has done much by its machinery of medical inspection at the port of entry to strain out the more flagrant cases of disease. It

is interesting and instructive to read in the last report of the Chief Medical Officer at the Port of Quebec, that "the larger the number of immigrants the less is the relative number rejected, probably because at times, the physical capacity of the inspectors is taxed beyond the limits of efficiency," and, "When you are told that two or three thousand immigrants and sometimes a larger number are examined in one day, you will understand that the inspection can be but a cursory one, during which suspects are put aside and re-examined," and again, "Experience during several years' connection with the Port of Quebec has convinced me that the best filter to oppose the penetration of the undesirables into the country will be found in the service of the ship's surgeon so soon as it is organized on some reasonable and systematic basis."

Dr. Bryce, in his report, suggests that the 3,000 Medical Officers of Health at work in the different health districts in England might be utilized as Medical Inspectors of intending immigrants before they leave their native district. How a more thorough inspection at the point of departure can be brought about is a big question, but it is one that presses for solution. It is a sad tragedy in immigration when one of a family of immigrants is turned back at the journey's end. One can readily understand the hope that inspires the sick and the weak to try a new country in the hope of cure, but we are selfish enough not to add to our burdens if we can help it.

It is not long ago that Calgary and the country around appealed to the Government to protect them from the tubercular people who were coming there in the hope that the climate would cure them.

In the report of the Royal Commission on Tuberculosis in Quebec the fact was brought to light that there was a higher death rate among the women of Quebec than among the men. In other countries it is the reverse. This was pointed out as being due to several causes, chief of which was the fatalist idea that disease and death were sent by "le bon Dieu," with consequent lack of preventive measures, and to their ignorance of hygienic laws, which allowed them to live in unventilated, closely

shut houses through the long winters. I would like to point out that in addition to this the French-Canadian women marry young and have large families. The study of maternity and longevity shows that after the fourth child, the children have lessening chances of enduring vitality and these would in the next generation give still lessening chances? The lowest resisting power after maternity, still more reduced by frequent maternity, when under unhygienic conditions, leaves the mother an easy prey to tuberculosis. Dr. Klebs distinctly states that "there should be, in every large community, either a special maternity sanitarium or a special ward in an existing maternity hospital where tuberculous mothers could be received a few months previous to their confinement and surrounded by the best hygienic and diatetic care. They should remain in this sanitarium some time after child-birth. It is only by taking away these mothers from their unsanitary tenement homes and placing them under constant medical supervision in such an institution, some time before and after their confinement, that the fearful mortality among tuberculous mothers after child-birth can be reduced. The beneficial effects on the woman's and child's constitutions that might thus be accomplished can hardly be overestimated. Leaving aside the physical well-being thus largely assured to mother and child at a period when their organisms need the most tender care, the hygienic training which the mother will have received in such an institution will be of lasting utility to herself, to the family, and to the community."

Another factor in producing consumption which we cannot afford to entirely neglect is our milk and meat supply. The history of bovine tuberculosis reads much like that in the human. In older countries it is greater than in the new. In England 25 to 30 per cent. of the cattle are reckoned as having the disease, and in some cases whole herds have been found to be affected. In the United States some 20 per cent. suffer, while here in Canada, as far as statistics go, tuberculosis is present in about 10 per cent. With our wide spaces and new soil the rate is kept down. Still it is here. Can we afford to neglect it? Moncton, Quebec, Regina, Portage la Prairie, Calgary and Edmonton insist that milk

supplied to them shall be from certified cows. Generally, when we ask for this protection, we are told that it is impossible, that farmers and dairymen will not produce cattle and milk sufficient to supply our needs if we make it so hard for them, and that if we insist on the tuberculin test our milk will be higher priced. But since calves are not born with tuberculosis, any more than humans, but acquire it, the keeping of stables that are dry, light and well ventilated would reduce the disease and loss to a minimum. The Government insists that fruit-growers destroy trees, even whole orchards of them, if affected by dangerous pests, *i.e.*, dangerous to the trees of the country. Whether it be in the case of trees or cattle the same regulation that may cause the loss of a few trees or cattle is retroactively a protection to every man's orchards or herds, and in the latter becomes a protection to human life as well.

Another vexed question is that of municipal abattoirs, where compulsory inspection of meat may be made at the time of slaughter while the viscera is *in situ*. Inspection of meat is very much to be desired, and, as only reliable inspection can be made at the time of slaughter, it would seem necessary that we should have municipal abattoirs. We find that commercial interests prevent our having this protection. Germany carries out supervision of her meat supply thoroughly. Meat entirely safe is sold as such, meat of which the viscera, etc., is diseased and meat unaffected is sold as second grade, and meat that is tubercularly affected is cooked to a safe heat and sold as third-class. Certainly, if people are to eat tubercular meat occasionally it is better that they should have it safely cooked and buy it for what it is.

But of the social problems that affect tuberculosis perhaps the housing problem is the greatest. We have, even in our new country, accumulated slums in our larger cities. Even where we cannot point to a district or a block as a slum we have numbers of individual or groups of houses that are unfit for habitation. Mr. Kelso, Superintendent of Neglected Children, in speaking of these, says: These slums are exceedingly dangerous to the health and morals of a city. They should be abolished

because they are a great enemy to the home and to the state. Bad housing conditions inevitably tend to drunkenness in parents, to delinquency in children, to disorderly conduct, to wife and family desertion, to immorality in the growing generation, owing to lack of privacy, and consequent loss of modesty, and to the spread of tuberculosis and other contagious diseases. So ably and fully has this subject been recently set forth by Dr. Hodgetts that I will only quote a passage from one of our most eminent writers on tuberculosis, who says: "An important feature in the prevention of tuberculosis must, of course, always be the proper sanitation of the home, the school, the factory, and places of amusement and recreation.

"The problem of housing the masses, particularly in large cities, is a vast one, but the fearful prevalence of tuberculosis in many of the tenement house districts of our large cities demands attention. New York's often described "lung" block, on Cherry and Market Streets, had, ten years ago, a death rate from tuberculosis of 37.5 per cent., and in the ten years between 1894 and 1904 some 290 cases were reported to the Board of Health, and since the Tenement House Law came into force 200 violations have been filed against these unsanitary dwellings. Yet in spite of this condition, in spite of the Tenement House Commissioner and the men and women interested in the anti-tuberculosis problem, who have pleaded again and again for the destruction of the block and the conversion of it into a playground or park, the "lung" block still stands because of the political strength of its owners.

"Every collection of dark, foul, unventilated tenements is a "lung block" dealing death to those who by economic necessity, not from choice, must live here and call these disease-breeding houses by the name of home."

It seems to me that humanity is to a certain extent divided into three great groups: 1st, that lower strata, that great weltering mass of people whose lives are merely enlarged expressions of their two primary biological instincts of reproduction and self-preservation, whose lives are little more than the expression of these instincts under present conditions and whose outlook is bounded

by their personal experience. It is from this group that our social problems mainly spring, as well as dangers that threaten our race and country. Another great group is of the more or less selfish class who are comfortable in their own environment, and occupied with their own ambitions and pleasures and who refuse to see or believe that there are social problems which affect them. People who have opportunity, intellect, means, but who, ostrich-like, keep their heads in the sand and refuse to see approaching evil or danger.

Between these groups is the third great group of men and women, who are the saviours of the others. Men and women on the firing line, conscious of danger, studying and striving to avert it, men and women who have the vision and the will to work to fulfill that vision. These workers contend with both groups, trying to educate both, trying to hold back the crowding dangers of ignorance, feeble-mindedness and vice and all the insidious evils that push and crowd us from below, striving with both hands to hold back the one group while calling ceaselessly to the other that old Macedonian cry, "Come over and help us." We have been told by one of the most ancient and revered of writers that to know how "to do good and to do it not is a sin." We know a great deal that ought to be done that we have not been able to do.

Why, if we know that over 300 houses in one city are unfit for habitation, and over a thousand in another city are reported as overcrowded, or we know of such districts as the "lung block" in New York, why do we not raze them to the ground and turn up the infected soil to the sunshine and the fresh air of heaven, leaving some open spaces where children may grow to healthy manhood and womanhood and not wither to premature decay? Why, if we are endangered by our water supply and our milk supply, do we not immediately remove the danger? Why, if we know we have a rapidly increasing constituency of feeble-minded who are degenerating the Canadian people, why do we not round them up and segregate them in institutions where they may live out their lives with safety to themselves and others? Why, when we know that 1,300 Canadians go down to unnecessary death

each year, implicating some 50,000 others in anxiety and sorrow and loss, why, if we know who the enemy is, and where the enemy is, do we not prevent this happening again, and again, and yet again?

I see as in a dream a giant working in a swampy farm. The name of that giant is Humanity, and ever as he works on the higher levels of his swampy field the noxious odors and miasmatic vapors rise round him and lessen his vitality. As I look I see some drains have

been made on the upper edges of the swamp, and I ask "why does he not drain it thoroughly from, and through, its cause and centre?" I am told he cannot, that two giants greater than he control the place and will not let him do it. And as I look I see on the edges of the swamp land, two giants greater than Humanity and the name of one is *Commercial Interests* and the name of the other is *Political Inexpediency*.

SOME PHYSICAL AND ECONOMICAL FACTORS IN THE BIOLOGICAL DISPOSAL OF SEWAGE

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It is fair to assume, since some sixty years ago when Professor Angus Smith was appointed in England as Inspector under the Alkalies and Rivers Pollutions Act, that most of the practical phases of the sewage disposal problem have been dealt with at some time or other. If we were to summarize the stages in the evolution of the problem we might divide them roughly into the following periods:—

1860-1880—Sewage Farming Period — wherein oxidation of the organic products was believed to be the chief agent of purification.

1880-1890—Antiseptic and Germicide Period — when lime, ferrous sulphate, hypo-chlorite, alum, etc., were added to the sewage, with the special idea of preventing microbial growth and destroying that already present.

1890-1900—The Septic Tank Period—when the liquefaction of sewage in septic tanks by anaerobes and aerobes was supposed to wholly disintegrate the sewage and render microbes harmless.

1900-1910—The Colloid Period — when the purifying action was represented to be due chiefly to the operation of purely physical forces and any microbial action was merely incidental during the process.

Now it is hardly necessary to say that during each of these more or less well marked periods some fact became so prominent that it obscured for the moment cer-

tain of the facts more or less generally recognized, but whose place and importance in the process was overlooked or misunderstood.

Surveying the whole field of sewage purification in the light of the history of what has been accomplished, I shall endeavor to set forth the chief physical and economic factors in what seems to me to be their relative importance.

I. What Sewage is.—Calmette, of Lille, in the 1911 edition of "Egouts et Vidanges," says the sewage of towns contains in extremely varying proportions two sorts of organic substances: 1st, Ternary substance, composed of carbon, hydrogen and oxygen, the most important being cellulose as of paper and vegetables, starches and sugars, etc. 2nd. Quaternary substances composed of carbon, hydrogen, oxygen and also nitrogen, and more or less notable amounts of substances as sulphur, phosphorus, and the alkalies and alkaline earths, as potash, soda, lime and magnesia and incidentally manganese and iron. These will necessarily vary notably according as the system of sewerage is combined or separate, since the volume of the former may attain fifty times that of the latter, and the former may contain very large amounts of industrial refuse. Similarly, even in dry weather, the amount varies greatly with the hours of the day. But Calmette says it is generally admitted there is an average of 100 litres, or roughly 25

gallons per inhabitant, of sewage to be disposed of daily, as follows:—

Personal cleanliness, lavatories, basins, etc.	16.5 litres
Water closets and urinals . . .	15. litres
Washing of vegetables, dishes, etc.	6.5 litres
Washing of houses, courts, kitchens	10. litres
Drinks and preparation of foods	3.5 litres
Public baths, etc.	10. litres
Various small industries, as bakeries, etc.	11. litres
Stables, washing of streets . . .	16.5 litres

This is the simplest form of sewage; but it is apparent that every manufacturing town must add industrial wastes which may notably alter the total amount of different substances to be dealt with. Taking, however, an average sewage such as that of Norwich, England, as analyzed by Dr. Travis, and we find a yet more important division of sewage from the standpoint of its purification.

Thus in 100,000 parts we have 165 parts of solid matter, divided as follows:

Parts not passing through filter paper—

1st, Parts deposited in great part by sedimentation at end of two hours and called gross solid matters, which may be removed by sedimentation tanks—68 parts.

2nd, Parts not so deposited and incapable of being removed by ordinary tankage, but is stopped by filter paper, and called fine solid matter—12 parts.

Parts passing through filter paper. These are generally called parts in solution—

3rd, Parts not diffusing through parchment membrane and constituting colloidal matters—20 parts.

4th, Parts passing through parchment and forming the solids said to be in actual solution—65 parts.

The greater importance of this division will be fully recognized when what is really implied by sewage disposal or in sewage purification is fully understood. It implies removal to the highest degree possible, by physical, chemical and bacteriological means of the organic matter present, which, of course, equally includes all living organic beings present, which by getting into streams would affect their purity as drinking water.

II. Preliminary Removal of Suspended

Matters. — Now it is apparent that if by any method it is possible to hold back or extract readily the solid matters which are suspended and wont go through, with a flow of one foot per minute, filter paper, but will settle from quiet sewage, we shall have not only prevented any danger from this source, but will also have *pro tanto* lessened the amount of biological work to be done later in the purifying process. It is in this direction that the last ten years have witnessed the most remarkable developments, and what has been accomplished by mechanical appliances is that which resulted fifty years ago when Bailey Denton and others allowed the sewage to deposit its solids by broad or intermittent irrigation on land. Thus, to-day, by such means as J. Smith's revolving screens at Birmingham, by Riensch's circular screens at Hamburg, and by the sedimentation tanks in Germany, etc., the high point has been arrived at that 70 per cent. of the total organic matter of sewage may be mechanically and largely automatically removed when the sewage flow is not greater than 4 millimetres per second, or 10 inches per minute, and especially where the sewage is allowed to rest from two to four hours. For instance, at Birmingham-Tyburn, the daily flow of sewage is divided into five sedimenting basins, each of 5,000 cubic yards, and each divided into three compartments. The sewage moves at the rate of about one foot per minute and rests about 4.5 hours. From these basins sludge is removed weekly. It contains 50 per cent. of water and is burned in destructor furnaces. It would appear probable, however, that not more than 75 per cent. of the organic matter is likely to be removed by improvements in mechanical methods. Certain objections have been raised with regard to the handling of so much solid matter; but though its concentration is great, it is found in practice that it can be mostly lifted by centrifugal pumps to some limited area, where, after being drained of its water and surface dried, it can be ploughed under a sandy soil or be burned with garbage in a destructor.

III. Removal of Fine Solid Matters.— The successful results of such a procedure strengthen the conclusions carried out at Hampton by Dr. Travis and others, that

the phenomena of purification of sewage, that is, the separation of the impurities in suspension, in solution or pseudo-solution are essentially physical and that in sewage treatment the first thing to do is to force the matters in suspension or in emulsion as colloids to separate themselves out. On the assumption of Travis, Dunbar, Ruppert and others that the colloidal matters in pseudo-solution and even particles in solution can by agitation pass out of solution much experimentation has gone on with the end of facilitating the deposition of such materials before the sewage passes on to either sprinkler filters or contact beds.

Probably the most perfect result is got from the decantation tanks devised by Emscher (of Inhoff) whereby, through the arrangements of construction, the work done by the ordinary, sedimenting basin and in the septic tank is in large measure accomplished, the raw sewage passing into them, not remaining more than an hour, whence it passes directly to the percolating filters or contact beds. The advantages resulting from these are that the sewage arriving at the beds before much decomposition occurs and without odor is thus more easily purified; while the sludge being highly concentrated is easily drawn off, occupying but a small volume. Such tanks are to-day increasingly in use even in England, where the cost of installation is from 50 cents to \$1.00 per inhabitant.

The essential idea in all these constructions is the mechanical diverting of the sewage stream over many surfaces so that the matters in fine colloidal division will tend to deposit there through simple adhesion. Colloidal solutions can be formed or destroyed at will; they proceed from matters in suspension in the sewage and can likewise form such and may properly be designated as a part of the sewage, though usually to-day called "ultra-sludge." It will be obvious that this result is attained probably in the highest degree in large plants by relatively simple methods as that of Birmingham, where the sediment tanks have removed over 50 per cent. of the suspended matter. The balance, containing 90 per cent. of water, is turned into a series of ditches about three feet wide and one and a half feet deep, which after gradually becoming filled with deposit are covered with earth and seeded

with rye grass. The same year it is fallow and the next is flooded again. The cost of such handling is about one dollar per ton of storage or deposit, while some 680,000 tons are thus disposed of annually. It is apparent that this is simply an intensive application of the older method of intermittent land filtration. Of the same character and to the same end is the septic tank which, in varied construction, has been in use especially since the Exeter tanks of 1896, though small private installations had existed for some eight years before. In spite of there not having realized the absurd claims originally made for them, the Royal Commission states that as preliminary treatment they are under many conditions both efficacious and economical. They allow preliminary sedimentation lessening by some 30 to 35 per cent. the solids in suspension, and the sludge is concentrated and can be readily removed. Much discussion has been made as to the relative effectiveness of open and covered tanks; but Calmette's long experiments at Lille show that the total work done in the reduction of carbon, in the decomposition of organic ammonia and the increase in free ammonia was slightly less with the closed than with the open tanks with storage for about twenty-four hours. Sewage purification by irrigation, practised forty years ago and wherever soil is favorable and not too high priced, forms even to-day aided by the septic tank, as represented by the Birmingham settling basins, probably the highest practical application of mechanical and biological disposal methods.

The Third Stage of Purification.—Recalling the constitution of normal sewage it will be evident that if 75 per cent. of organic matter has been removed by the most thorough of the foregoing methods we still have left about 40 parts of organic matter in every 100,000 parts. Comparing this with an average potable water, we see that this means 4,000 times as much organic matter has daily to be disposed of or removed if the purification is to be perfect. No such working standard has yet been attempted. Thus average Thames water contains .0167 parts of albumenoid nitrogen in 100,000 parts. Clearly the work of removing by some process this organic matter still remaining in the sewage is a serious one. We, therefore, turn to those

natural processes which we see have turned the vegetation of past ages and of every succeeding year into humus and which in the most extended experiments such as those of Lawrence has been shown possible as a practical method only on porous soil and under conditions where the sewage is applied intermittently and oxygen is allowed to follow the water into the soil. There it has been shown that an amount estimated at 2.50 grammes per square metre, of organic matter can be daily consumed by oxygen or about the equivalent of 1,000 cubic yards of sewage per acre, or of 150,000 gallons per day. This is due, as shown by Schloesing, Muntz, Winogradsky and others as early as 1878, to the series of nitrifying microbes present in soil. As Calmette says these are normal to most soils, as they are aerobic, they can live and oxidize ammonia in the presence of atmospheric oxygen. Hence we find them ordinarily only in the superficial layers of the soil, where the air penetrates. There are besides these in the deeper layers the anaerobic microbes which utilize the oxygen of the albumenoid and other matters, and play an important part in purifying sewage. But in clogged soils, or compact or badly drained soils the nitrates are destroyed by reduction or deoxidation and no longer are in a condition to supply the needs of plants.

These facts enable us now to comprehend what goes on during the purification of sewage in its intermittent application to natural filter beds of sand or to so called contact beds made up with coarse materials below and ending at the top in beds of washed sand or in the continuous percolating filter, to-day illustrated in many places. While the accumulation of organic matter is evidenced in methods of disposal of sewage on the soil and made abundantly plain by the organic accumulations of centuries which makes the virgin soil of the prairies, yet the experiments in tanks (septic) as well as those on beds at Lawrence show that the nitrogenous contents of sewage are rapidly lost under favorable or land disposal conditions, their change into nitrates rapidly becoming complete. The opposite is the case with the carbon, which everywhere is but slowly oxidized giving great force to Dr. Travis's assertion, "That had this fact been given due

consideration the possibility of treating raw sewage on filter beds without clogging them would never have been suggested." He further states that the identity of the changes in natural and artificial soil should be considered as beyond discussion and that any theory of absorption and retention by the soil, without equally recognizing the slowness of conversion or oxidization of organic materials from the sewage cannot be accepted as a solution of the problem. "*La Doctrine de Dunbar reconnaît la première, mais nie la seconde et considère que la conversion des matières laissées dans un lit par une charge de liquide est acquise lors de la mise en charge suivante.*" It is then apparent that wherever sewage comes, as it ought to come, standardized to the contact or sprinkler bed, the final change here must primarily be a physical one. As put by Calmette, "the organic materials find themselves retained on the porous beds by a physical phenomenon of molecular adhesion, and when each basin is emptied the incoming air taking the place of water infiltrates the whole mass of materials."

It is at this moment the oxidizing or nitrifying microbes intervene, fixing the oxygen in the retained organic substances as they do in well cultivated and drained soil. To this end, Dibdin first gave us the rota of successive stages in the operation of a contact bed.

1st.—One hour to fill the bed with sewage.

2nd.—Two hours full contact with bed.

3rd.—One hour to drain the bed.

4th.—Four hours of aeration; or three complete periods in 24 hours. With this run of three periods and providing a series of three contact beds, sewage gave a retention of organic matter of about 50 per cent. in the first bed, of 75 per cent. with second bed, while the third bed resulted in retaining 82.5 per cent.—the nitrates increasing proportionally in the effluent after each bed. Such a system with two contacts is to-day probably best illustrated at Manchester, England, handling 30,000,000 gallons daily after a previous twelve hours in septic tanks. Each bed regularly deals with about 100 gallons per square yard per day, or 40 times greater than the best land disposal, or half a million gallons per acre daily.

The process of purification whereby the organic matter is fixed to the particles of the filter is to-day called the power of absorption or, really, adhesion. Its thoroughness depends upon the kind of material, its thickness, its absorbing power, its capacity to hold moisture, its temperature, etc., and finally the kind of organic matter. Bretschneider has attempted to show that the purification which takes place in the bed is purely mechanical, the materials simply being fixed to the particles of the filter by simple capillarity or adhesion; but Dunbar, as others, has shown that carbonic acid and nitrates in definite quantities are given off in the air and effluent water, Dunbar declaring that during the oxidizing intervals the bacteria break down the organic matter, the results of decomposition being carried away with the subsequent emptying or flushing. What does really take place, according to the experiments of Boulanger of Lille is, that when a given quantity of scoria is used to filter a definite amount of sewage containing a definite amount of organic matter of known chemical constitution and is left in contact for one or two hours, then a portion of the liquid drawn off is analyzed when he has been able to prove that putting sterilized organic matter in contact with fresh scoria the fixation of a peptone solution is very rapid. At the end of five minutes one-third is fixed in four hours, and four-fifths in eight hours. Organic matters further are the more rapidly fixed in degree as their molecules are more complex. Fixation under the presence of

chloroform is much impeded, while fixation in the presence of microbes is much greater than when the same materials are sterile. Hence summed up purification in contact beds implies,

1st. Physical Action—Arrest of matters in suspension, fixation of certain matters previously in solution.

2nd. Chemical Action—Especially combination of metallic substances, and oxidation of organic matters.

3rd. Biological Action—Implying fixation, absorption, disintegration or organic matters which are nutritive to the microbes present. The principles are the same in the percolating filters, increasingly coming into use since they avoid certain untoward effects almost inevitable in the operation of the contact bed.

To this the standardized sewage is simply brought and distributed in the finest stream possible. The great advantage of such filters is that sprinkling and oxidization go on simultaneously, the nitrifying microbes are never drowned and twice or thrice the amount of sewage is purified daily up to even 1,000,000 gallons per acre per day. Though not giving so pure an effluent, a final irrigation over a fine sand filter or soil would render it perfect.

I have thus attempted to summarize the many physical and economic problems, which enter into the system of biological disposal of sewage, and trust that what has been outlined as the result of the several stages in the operation will be amplified and made clearer in the several papers which are to follow.

DUST AS A FACTOR IN DISEASE

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Dust may be described as particles of matter which float in the air, or settle on surrounding objects. Country air may contain only 200 particles of dust to the cubic centimeter, while large cities may contain 150,000, and some tenement houses as much as 1,000,000. Aitken, a Scotch savant, has shown that no condensation of moisture (as in rain, mist or fog) could occur without nuclei, such as dust particles. He has also devised an instrument for

counting the number of dust particles in a given sample of air or gas. Fortunately, the greater portion by far of these particles when taken into the lungs in respiration are harmless. But the most important and by far the most serious question concerning *dust-laden air*, which means nearly all air, to a greater or less extent, is the danger it brings to human life in disseminating the germs or bacteria of disease. The number of disease bacteria in the air has been

calculated by many analyses. Taking 10 litres of air as a basis, in a Boston city hospital, the number of living bacteria was found to be 450.

In a model New York hospital where the strictest precautions had been observed, 12 living germs settled on the disc, and *after sweeping*, 226. In a New York tenement house, carpeted living room, 75 living bacteria settled on the disc in an exposure of five minutes; *after sweeping* 2,700 settled on a plate disc $3\frac{3}{4}$ inches in diameter.

Some particles of dust take months to settle; others probably years.

Parliamentary Report on Dangerous Trades in 1899: Some years ago the miners of our country died in large numbers from a form of consumption, but since the compulsory introduction of improved methods of ventilating pits, and watering the coal dust in the mainways, the calling of the miner is a comparatively healthy occupation.

And it was thought that what had been accomplished for the safety of the miner should, whenever possible, be tried for other persons who work in a harmful dust.

In a very admirable lecture delivered by Mr. Edmund Owen on *Dust and Disease*, at meeting of British Med. Association, held at Sheffield in June, 1908, in noting the high death rate from chest diseases in Sheffield, he suggested the desirability of equipping a chair for the study of diseases springing not only from the dust of Sheffield workshops, but from other causes which seem inseparable from its world-famed trades. The person who would be chosen to fill the post in the university would make it his business to study the very beginnings of the diseases brought on by breathing air-laden dust or poisonous vapors from stone and coal, from mother-of-pearl, steel, lead and emory, and from every other material used in the workshops; he should have the opportunity of following each disease throughout its entire course, and of making a careful examination of the diseased tissues when death at last claimed his victim, and the results of his labors would be a benefit to mankind and the future generations.

It is not necessary to dwell upon the mechanical effects of dust on the smaller tubes of the lungs, their delicate mucous

membrances and their tiny air cells. As a rule, those cause sufficient irritation to excite cough which causes immediate expulsion, but if the worrying of a weak lung by dust is continued for a long time, the cough becomes dry and useless, a certain amount of dust remains in the lung and the proper function of the lung is at least crippled to that extent; a lessened breathing space in the lung, a lessened capacity to absorb oxygen; in short, a diminished vital capacity and a lessened power of resistance to disease, particularly pneumonia. Recognizing these facts, most ingenious devices have been contrived to lessen the danger to the operatives in the various trades and occupations, razor-grinders, millstone dressers, saw-filers, etc., from the constant inhalation of the dust inseparable from the work; every particle of which, as seen under the microscope is either a jagged and irregular fragment of stone or a tiny barb of steel. A few years ago a physician brought before a medical society in London pieces of diseased lung from a man who had been for many years a razor-grinder; nearly all that time he had been worried by asthma. The pieces of lung shown, instead of being light and spongy, as they should have been, were heavy and solid, and on careful examination with a magnifying glass, glistening crystals could be seen which proved to be tiny particles which had flown from the stone as the man bent over his daily task.

The Work of Pasteur and Lister on Dust Foundation of Science of Bacteriology: A few years ago a French newspaper, *Le Petite Parisien*, asked its readers to name the ten most illustrious Frenchmen of the 19th century. Over fifteen million votes were received in reply, Victor Hugo, Gambetta and the great Napoleon getting each well over a million, but high above them all came one whose name is a household word, not only to the medical world, but to all admirers of one of humanity's greatest benefactors. Louis Pasteur, the chemist, was born in Eastern France in 1822; his father a tanner. When he was sixteen he was sent to Paris to study, but he soon fell desperately homesick, and home he had to go, becoming shortly after pupil-teacher in a neighboring school, but when he was 22, he went again to Paris, and by never-ceasing labor became a world-famous chemist.

The discoveries of Pasteur were a benefit to humanity, not only for having given new life to industries, especially agriculture, but led up to the cure of certain diseases of men and of beasts, which before his time were looked upon as being almost divine institutions. One of these diseases was hydrophobia, another was anthrax, another chicken cholera, and another his never-to-be-forgotten revival of the silk industry of France by his discovery of the cause of the disease of the silk worm.

And all his splendid results came from his careful and untiring study of dust.

He made the discovery that powerful germs may abound unseen in the atmosphere, and that by drawing large quantities of air through a tube in which is lodged a tuft of clean cotton wool, the wool becomes darkened by the dust and germs which it contains, and the air comes out dustless and pure. Then he showed that milk or meat or beer will remain fresh and sweet in air which has been thus purified of its germs, and that if a piece of the germ-laden wool be first dropped into the milk or beer, it goes bad. It proved that it was not, as generally believed, thunder or lightning or heavy weather that made the food turn, but *the dust germs in the air*. He next explained how it was that wine or beer went sour if it was left in an uncorked bottle. He proved that floating in the dust of the air there are, amongst other things, countless germs of the vinegar plant, and that these germs falling upon the liquor they settle there and grow at a great pace, taking oxygen from the air and giving it up to the liquid, turning it sour. No doubt in the process of bottling some of these germs are also admitted, but they remain harmless, for they need plenty of air for their growth. And when wine was stored in large vats with a good deal of air, much of it went bad because of the sprouting of these germs.

He also showed the vine-growers that the heating of the wine to 130° F. destroyed these harmful germs without hurting the wine. This is the principle of the present system of Pasteurizing milk. When he had done this great work in connection with wine and milk, his attention was called to a different matter. For twenty years a fearful plague had been smiting the silk-worms of the country, causing dis-

trepreneur through the whole of the South of France, and he was entreated to put that matter straight also. He begged to be excused, claiming that he was only a chemist, and that he had never even touched a silkworm, but he gave himself up to the work. This was in 1865. The diseased silkworm ate his mulberry leaves, and in due course became a chrysalis, and the chrysalis became a moth, but the moth turned out to be a cripple and laid useless eggs. Pasteur closely questioned the growers in the hope of finding out the cause of the disease, but no one could give him help. And, indeed, most of these persons complained that the Government had merely sent them out a chemist with a microscope to do battle for them, and there were people who laughed at him just as the Phillistines laughed at David when he advanced towards Goliath with his sling and stone. Pasteur merely said, have patience. He himself had plenty, and he worked day and night. In due course he found that *the disease was caused by certain germs, which might be conveyed by dust*, and the only thing to be done was to destroy every diseased moth, and to obtain for the growers a fresh set of healthy seed, as the eggs are called. On his advice this was done, and so, in the words of the Psalmist, "The plague was stayed."

Pasteur did great things for the brewers by showing them that the fermentation of the sugar of the malt is due to the growth in it of the yeast plant, and that unless the yeast is sound and good, as shown under the microscope, the beer will not be blessed with a good flavor.

He had already explained to the vinegar makers that the change of wine into vinegar was due to a fungus which must be kept of a good strain and healthy growth. Thus he had at this time made three discoveries of the utmost value that ferments such as yeast, and the vinegar mould are living entities, that each fermentation has its own little plant, and that these plants do not of themselves arise in a fluid, but have to be dropped into it by the *dust* of the air, or placed there by the hand of man.

In 1877 a mysterious scourge called anthrax was affecting sheep, cattle and horses in France, 20, 40 or 50 sheep dying out of every 100 in certain flocks. No one had any knowledge of the cause of it, and the herdsmen were helpless and dismayed. Pasteur having been called to assist took a

drop of blood from an animal just dead of the disease and let it infect some warm broth. Soon afterwards he took a single drop of this infected broth and put it in a second lot of broth, and in a little while added a drop of this broth to a third lot, and so on, over and over again till the hundredth lot was reached. Then he took a small quantity from this hundredth broth and injected it under the skin of a healthy guinea pig, and, behold, it died of anthrax, just as the sheep had died, from which he had drawn that first drop.

And in the blood of the guinea pig which he had thus sacrificed on the altar of science, as in the drop which he had drawn at the beginning of his experiment, he found, by the use of the microscope, certain rod-like germs, which proved to be the *dust germs* of wool sorters' disease.

The effect of wool sorters' disease on the human being is well known. Pasteur has told us all about the cause of it and he found it out by the help of guinea pigs and rabbits.

Animals dead of anthrax were cast into pits and covered with earth, but though the fields underwent nature's cleansings by sun, rain, frost, and snows, if, in the following year sheep were turned into them to feed, the trouble began again. It looked as if the disease had broken out anew on its own account, but Pasteur could not accept that explanation, and it struck him that earthworms might be bringing up germs from the buried carcasses and leaving them in the "casts" upon the surface, and that as the casts dried, the wind scattered the *germ-laden dust* on the grass and infected it. Having captured some of the suspected worms, he found their insides teeming with the fatal taint. There could be no mistake about their guilt. It was as clear as if a policeman had caught a man creeping out of a house at dawn with a dark lantern and a jimmy, and a bundle of swag tied up in a bag.

I wonder if any supercilious or super-sensitive anti-vivisector would object to Pasteur having laid open these guilty worms, or even to have caused the sacrifice of these guinea pigs and rabbits in order to disclose these mighty secrets so vital to the existence of man and animals.

After that valuable discovery animals dead of anthrax were no longer buried in

fields intended for pasture or for the growing of hay.

Edward Jenner, an English country doctor, a hundred years ago, noticed that people who, in milking cows or looking after calves, had caught from them a mild disease known as cowpox, never took smallpox, though they might be in the thick of a violent outbreak, and he wondered if he were to sow seeds of that mild disease in people who had never had smallpox, they might be prevented catching it. This sowing of the harmless seed of the calf disease he called vaccination, and he showed that by its adoption people could be rendered proof against smallpox.

Pasteur had a great admiration for Jenner's work, and was anxious to use it, if possible, against this fearful cattle disease.

He tried it by injecting beneath the skin of the sheep and cattle a few drops of anthrax germs which he had weakened by cultivation in his laboratory, and he taught the veterinary surgeons how, by its employment, they could protect them with unerring certainty.

Here was a great work accomplished by research for the benefit, not only of mankind, but of the flocks and herds themselves.

Pasteur the Sower, Lister the Reaper—Lister the Discoverer of the Antiseptic Method of Treating Wounds: Lister was born in 1827.

While Pasteur was working at these subjects the hope was ever present with him that his discoveries might lead to the lessening of disease in his fellow-creatures, and I am going to tell you how this hope has been realized.

When Lister was house surgeon in London and at about the middle of the century there came under his care a great number of cases of hospital gangrene—or *mortification*. In those days mortification was a terrible scourge in the surgical wards, and, working on the lines of Pasteur, he came to the conclusion that it was due to the presence of living germs, a sort of yeast plant in the fluids of the wounds from which every surgical case ought to be kept free. This was the gospel of Lister.

And, according to it, these germ diseases closely resembled those which had disturbed the French vinegar makers, the

brewers, the silk-worm growers, and the farmers, all of which had been happily cured by the touch of Pasteur's magic wand.

None but those who have seen them can realize the horrible character of those hospital diseases then so rife—and it is not necessary to harrow your feelings here with an account of them. I will merely say, that they dogged the steps of the most careful and able surgeons, carrying off a large number of those patients who had any breach of the skin, whether due to operation or accident. Scarcely ever then did a surgical wound heal quickly. The usual course was to fester and run with foul-smelling matter by which the whole body was more or less poisoned. Sometimes these scourges sweeping through a hospital would carry off every other patient or 2 out of every 3, destroying the peace of mind of the surgeons and robbing them of all confidence in their act. Certain beds and certain wards seemed haunted as by an evil spirit. And amongst the hospitals none had a worse name than the Glasgow Royal Infirmary, to which Mr. Lister was appointed surgeon in 1860. It was here that he first showed that the cause of these diseases was germs upon the part to be operated on, upon the tools used at the operation or upon the surgeon's hands, and that these germs had to be got rid of if the surgeon was to carry on his work with safety.

This shutting out of germs from the field of operation, which is commonly called *Listerism*, is now obtained by the diligent use of soap, water and nail brush, as regards the surgeon and the patient, and by the destruction of the germ-laden dust and dirt which may be upon the instruments by boiling them in water (dry or moist heat being a powerful destroyer of germs). Every housewife knows this. When germs are beginning to seize on a piece of meat which she wishes to keep a little longer, she roasts or bakes it for a short while in order to make it sweet once more. Pasteur explained how it was that this enabled her to keep the meat wholesome. And Lister, following in Pasteur's steps, showed how, by heat, the surgeon could remove all germs, dust and dirt from his tools, and how by the use of the other great purifier, water, with certain additional aids, the

needful personal cleanliness might be secured.

Speaking modestly of himself, Lister said that all he had done had been to lay hold upon the work which had been accomplished by Pasteur, and to bring it to bear upon the field of surgery. It has been well said that if it was Lister who first saw the everlasting value of Pasteur's work in the way of securing greater safety in the treatment of wounds, it was because he was "watching on the heights" and he was watching there alone.

Suffice it to say, that before the applications of Lister's new theory to the treatment of wounds, it was the custom at an amputation to tie the arteries leaving the ends of the ligatures long enough to hang from the stump to permit of drainage, until nature cast them off, in due time, but during this time there was the risk of germs making these threads into a sort of scaling ladder, and thereby entering and infecting the wound. Lister believing that if he could preclude the entrance of germs, he might close the wound, cutting short the threads, and the wound would heal at once, but he did not dare to venture the experiment lest it might prove disastrous to his patient. What did he do? He first tried it on a horse. All went well. Then he used it on a man, and on him also it did well. And this piece of work alone has saved so many from death that it will, for all future generations, bear testimony to the value of research and bless the name of Lister.

When we see that the researches of such men as Pasteur and Lister, which may be said to have laid the foundation of the science of bacteriology with all its attendant blessings to humanity, not to speak of the rich treasures yet in store—*took their origin in the dust of the atmosphere*—it would almost appear like the gospel of Christianity—too good to be true, placing as it does, within our reach, the means wherewith to battle with that great arch-enemy to man, *disease*.

Recognizing these facts, and the universal prevalence of dust, with its ever-present danger of transporting and propagating disease, would it not be a fit and proper subject to occupy the attention of the Canadian Public Health Association, with a view to its amelioration, if not

its elimination, as far as possible—especially along our great highways of transportation, the three great transcontinental lines of railway, with their constant intermingling of the dust from all quarters of the globe, with all that it means from a hygienic point of view, not to speak of the abominable, filthy, and from a sanitary standpoint, criminal practice of ordinary broom sweeping on the passenger trains en route—to which a

long-suffering public is ruthlessly subjected, from which there is no escape—and for which the only remedy seems to be united and determined action on the part of the Canadian Public Health Association for its suppression, and the introduction of more hygienic methods in the light of modern knowledge in regard to the greatest of all dangers to the public health—the dust of the atmosphere.

TUBERCULOSIS AND PUBLIC HEALTH

BY SIR JAMES GRANT, K.C.M.G., F.R.C.P., LOND.

It is a dreary business raking over the embers of old camp fires, writes Crothers, of Boston, in his charming work, "Among Friends." The outcome, however, of the papers, and discussions of the Tuberculosis Association, is evidence of new camp fires, in hills nearer home. Important advances for the preservation of life, and the care and watchfulness of our people during the recent session of the Ontario parliament, have been announced. Dividing Ontario into districts, to be specially inspected, as to general sanitation, is certainly a progressive move, and one which merits the co-operation of our people and the profession. This province is well supplied with a high order of medical talent and training in sanitary science. In each city, town and village, an advisory committee of medical men, and two lady inspectors, suggested by each mayor, should meet occasionally, in addition to the ordinary health officer, to discuss such matters as food supply, water, milk, inspection of dairies, inspection of schools and tenement houses of the poorer classes, inspection of laundries, and workshops of women and girls, notification of smallpox, tuberculosis, typhoid fever, and diphtheria, mode of fire escape from hotels, factories, schools, public lecture halls and theatres. The appointment as district health officers is a most important responsibility and one difficult to accomplish single-handed. Women as supplementary health visitors are all important, particularly in the arrival of infants to those in poor circumstances, where advice as to general management, nurture and cleanliness, vital principles in

child life, where an influence for good can be exercised undoubtedly, throughout our Dominion, and contribute greatly to lessen infant mortality. The life emigrating into Canada is not more important than the life we have with us. The mortality in infants is undoubtedly greater than it should be. After the most careful investigation the chief source of mortality was brought home to the mother, and in Berlin to-day, where nature takes her course, infant mortality has declined from eleven to two per cent. What better evidence can possibly be adduced against artificial fashionable infant feeding. A ship such as the Titanic foundering with a loss of over 1,600 souls, is a shock to the world. We are yearly at present facing a loss of human life in Canada, from tuberculosis, of fully 8,000, and over 3,000 from typhoid fever. Fortunately a marked change for the better has taken place, in the past few years, as to widespread information, from ocean to ocean, guiding and directing *home effort*, fortified by aerotherapy, a powerful preventive measure, to stay the spread of disease, than which nothing is really more important. A most worthy project would be the establishment of a provincial farm for inebriates, which would restore many to practical usefulness, and reduce the death rate from tuberculosis, as alcohol is known to be an undoubted factor in the production of the white plague.

Dust, as a source of disease, and particularly tuberculosis, is attracting wide attention, so much so, that an anti-dust campaign is at hand. The constant inhalation of all kinds of irritating dust,

makes the invasion of the tubercle bacillus an easy matter, especially with reference to municipal street dust, and house dust, of ordinarily constant prevalence; hence the fatal termination of many cases of tuberculosis, the result of street dust inhalation, of recently expectorated tuberculous sputum dried rapidly under a strong wind. Habitual infections from house dust are the most common sources of spreading this disease. In many cities to-day the principal cleaning of streets is done at night, and accomplished as an almost dustless operation, in removing by automobile vacuum street cleaners, on the principle of vacuum house-cleaning, which is rapidly taking the place of old and useless methods. Streets are the ventilating flues of cities, and house ventilation depends much on the quality and purity of street air. The widespread reforms now being introduced in civic cleanliness will have a powerful influence in safeguarding the public and lessening

the spread of disease, particularly tuberculosis.

We enjoy an admirable climate, excellent food, an all-round education, suited charmingly to the requirements of the masses, and what more can we desire, or hope for? As a home for new-comers, New Ontario is an ideal location, in fact, not surpassed in the Dominion of Canada: thousands of acres of first-class agricultural land, with an unlimited supply of wood and water, near at hand, and in close proximity to markets, for farm products, of the highest possible class. Nothing tends to make a country more attractive for settlement than a high health record. Such local advisory committees, as suggested, would afford a noble opportunity to assist in strengthening the very fabric of our Dominion, in many lines, which will prove an undoubted source of pride and pleasure to all concerned.

TOWN PLANNING FROM A SANITARY STANDPOINT

BY J. RAWSON GARDINER,

PRESIDENT OF THE PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.

The drawing up of a general plan of civic improvements in order that the money spent thereon may be utilized to the best advantage and that the work done may gradually embody a complete scheme is now generally termed "Town Planning."

One of the main objects of town planning is to prevent congestion—*congestion of buildings on the land and of persons in these buildings* in order that every one may have his due share of sunlight and air so necessary to the health of the inmates, *congestion of traffic on the streets*, so that the cause of many a serious accident may be eliminated and the advantages of rapid transit may be obtained, and *congestion under our streets*, so that all pipes, wires, sewers and street and other railway subways so necessary to the modern welfare of our large cities may be laid out with due respect to our future needs. Congestion is certain to accompany the building of a city on the "laissez faire" principle and not according to a wisely drawn up plan embodying not only the needs of the present

day, but also the wants of the next generation.

This "laissez faire" method of growth has usually proved both wasteful and ugly, so that there appears to be some chance for a better realization of our needs and the necessity of forethought in our future town planning.

Fortunately we have among us those who are making a very hopeful and earnest effort to prevent our cities from drifting and thereby losing forever splendid opportunities of betterment.

Town planning schemes can usually be subdivided into three sections, viz.—

1. Traffic facilities;
 2. Suburban development;
 3. Parks, playgrounds and boulevards;
- and each of these three headings has a sanitary aspect which it is the object of this paper to lay before you.

In the first place it is absolutely necessary to have wide main thoroughfares, and to obviate excessive grades, so that the advantages of rapid transit may allow the citizens who usually are compelled to work

in the centre of a city to easily and comfortably travel to and from homes where there is plenty of fresh air and sunlight.

It is on obtaining good traffic facilities that all suburban development depends and without it crowding (and crowding usually means slums) is almost a certainty. What we need is the laying out of a complete system of main thoroughfares, for say a radius of 10 miles from the city hall, the placing of homologated lines to prevent buildings being erected on this land which would require demolishing later at considerable expense; and the acquisition of abutting properties as far as possible at present values and the re-selling of same after the improvement.

We, in Canada, have probably a greater tendency, on account of our long and severe winters, to crowd closer together than those in warmer climates and, for this reason, we should be the more careful that every facility be given citizens to spread out more evenly over the outskirts of our cities.

Our population is becoming also more and more cosmopolitan and the evils of crowding in the centres of our large cities is a serious problem, the solution of which is claiming the attention of social reformers the world over.

There is little doubt that do what we can to prevent this crowding there is certain to be a tendency in many persons to live as near as possible to their work and in the centre of the mad rush and whirl of a busy city, and it is, therefore, the duty for all town planners to consider this portion of their subject and to plan in such a manner that these houses shall not be slums, but well-organized healthful dwellings with plenty of light and fresh air and a due proportion of green grass surrounding them. This should be obtainable by building blocks of houses or flats around a large court which becomes the playground of the inmates of the dwellings surrounding it.

Take an ordinary city block, say 200 feet by 500 feet, and build a block of houses around a central court and you have a playground in the centre instead of a series of backyards which are usually the dumping ground for refuse, a breeding place for rats and other unsanitary

troubles too numerous to mention, besides an eyesore to any but the most callous.

Given proper supervision there is no reason why this land cannot be converted into a playground where healthful exercises and games can be indulged in or be used as a pleasant place in which to sit out and enjoy the sunlight without the smell too nauseating to stand that is customary in the average central city backyard.

Now we come to the second item, viz. :— "Suburban development," which under the advantages derived from rapid transit by motor and trolley is sure to grow apace. It is the duty of those who are responsible to see that the growth is made upon proper principles and not allow every owner of a farm to subdivide his strip of land as the spirit may move him trusting to luck how it may conform to any general principle of roads, drains, etc.

There is no need either for the present miserable shacks erected too often in outlying districts. They are hideous, unsanitary and usually an extravagant method of building and, as the City of Montreal has enlarged its area it will simplify the problem of controlling the development of suburban areas, which is one that must be faced, understood and solved.

Picture to yourselves in place of these miserable buildings a suburb built on garden city lines, such as can be seen in England and Germany, with roads laid out with due respect to the contour of the land and having simple, comfortable and artistic cottages in quadrangles, courts, or other devices, and with trees and other natural advantages carefully preserved and one can foresee without being a prophet a great step forward in the health and welfare of the citizens, to say nothing of the advantages to the community as a whole in the appearance of the district. As prevention is better than cure, let us one and all see to it that the new sections do not fall into all the errors of the old which, if allowed, will need rectifying at tremendous cost by following generations.

The keeping clean of the newer sections can be done at practically no expense beyond proper planning and the wise adoption of suitable by-laws; and what can be done for the betterment of a district by a combination of town planning and co-partnership housing has been shown at

Hampstead and other garden cities in a practical manner.

The cost of cleaning up the older sections of a city is unfortunately a more expensive procedure and one which usually increases as the years roll by. But the amount of expenditure necessary to make such improvements as widening main thoroughfares, the cleaning up of the unsanitary dwellings, i.e., with dark rooms, bad plumbing, etc., will vary considerably upon the method employed to do these works.

Montreal in the past has paid most dearly for all her improvements; in fact, if the money spent to date had been used judiciously Montreal would have been today one of the most beautiful cities in the world.

A little foresight in the laying out of our outlying districts will prevent the recurrence of so many of the evils that exist in the older sections of our city that it will be a crying shame if powers are not procured whereby the laying out of these new districts for proper subdivision can be done through a Parks Commission or some similar body before it is too late and thus save the next generation a tremendous expenditure.

The advantages from a sanitary standpoint of the third section, viz. :—

“Parks, playgrounds and boulevards are almost too obvious to need discussion. It is only because Montreal is so lacking in proper playgrounds which should be dotted about in the centre of the city in order that every child may have some open space besides the street where he can vent his natural good spirits without danger to himself or others, that I deem it wise to state that these playgrounds should be placed about one-half a mile apart in order that the younger children do not have to walk more than one-quarter of a mile to and from their home (which I believe experts agree is sufficient).

Boulevards are a section of town planning that is virgin soil for Montreal, and the advantages of connecting open spaces in a city by parklike roads have to be enjoyed on paper or by travelling to some other city. These tree-lined streets have, from a sanitary, as well as an artistic, aspect, many points in their favor and

should form pleasant connecting links between our open spaces.

As open spaces along a river front have so many advantages they should be kept, as far as possible, for the benefit of the community, except when needed for commerce, and there is no reason why the river bank from Victoria Bridge to the Rapids could not be preserved as a beautiful park and playground which, with the proposed boulevard along the aqueduct, should provide a driveway of which all citizens would feel proud.

This driveway should then be connected to Mount Royal Park by a boulevard up Atwater Avenue, as suggested by the Architects' Association, and thus make a connecting link between the River Side Park and Mount Royal.

I trust that these few notes will show that town planning has a sanitary as well as an artistic object and that we who live in large cities cannot allow individualism to run riot, as the community have certain rights as well as the individual.

Town planning is fortunately beginning to teach owners and architects the necessity of studying the effect of the buildings on a street as a complete scheme.—“What a beautiful street,” not merely “What a fine building,” is what we should aim at, and one of the outcomes of town planning should be this study of the grouping of buildings.

Our World's Fairs have done much in showing what can be accomplished by the proper laying out and grouping of important buildings, while the work at Hampstead and other garden cities should do the same in regard to residential areas.

To obtain the advantages of grouping it is necessary to take up town planning, and we could not show our appreciation of the work done by Lord Grey in furthering this movement in Canada better than by carrying it through to a practical and successful issue in all the large cities of Canada. The battle cry of the Canadian Public Health Association should be, “Abolish the Slums” and the duty of every member, to see that our cities and towns are planned on sound, sanitary lines and with due foresight for the future, so that the slums be no longer a slur on the civilization of the twentieth century.

NATURAL VENTILATION IN PRIVATE DWELLINGS

BY PROFESSOR T. W. LUDLOW, B.Sc., M.A., LICENTIATE R.I.B.A., MCGILL.

When I came to the Province of Quebec a little over a year ago, one of the features that struck me most forcibly, as certain features always impress themselves on the mind of one who sees a district for the first time, was the rows and rows of houses, alike in the wealthy and poorer sections of the cities and country, sealed against all possible ventilation by double windows screwed securely against the frames of the inner sash. True, in many of these there were so-called ventilating devices, such as revolving metal discs or slit openings in the lower part of the outer window frame. These, however, are worse than useless, as I have seen literally hundreds of the first type rendered ineffectual by paper being pasted over them, and more common still in the second type, the wooden slide for regulating the amount of fresh air to be admitted is nailed tightly down to the sash. In fact, there is a building in Montreal, of a public character, which should serve as an example, that has metal disc ventilators in the windows of the different offices, all of which, with possibly one or two exceptions, are carefully pasted over with paper.

Upon further investigation, I found that the number of deaths, and still more the number of cases of tuberculosis in the province, were appalling, but not to be wondered at after seeing the sealed houses, as absence of fresh air is now recognized as one of the primary causes of disease, and lack of ventilation as a sure means of spreading sickness. This lack of ventilation has only become a factor to be contended with in the last few years, as prior to the introduction of the radiator heating systems, the foul air was removed from the houses by a forced draught through the flues of the coal stoves and open fireplaces, and fresh air was admitted through cracks due to looseness in construction. This is an excellent example of natural ventilation, one that is fortunately beyond means of control, and can not be stopped when there is a fire.

Since the introduction of the radiator heating systems, ventilation has become a negligible quantity in dwellings, due to the fact that no separate chimneys or flues are

required in the individual rooms, hence there is no powerful extraction of the vitiated air with the concurrent replacement by fresh air. The present standards of building now enforced still further add to the difficulty of proper ventilation; in fact, it is no exaggeration to describe the rooms in modern houses as almost airtight boxes, depending only on the air that filters through the outside walls.

This vitiated atmosphere is made still more injurious to human beings by being overheated and dried, and it, therefore, brings up the question of humidity, one that cannot possibly be separated from any system of ventilation, whether natural or forced. With moist air in a room a person will feel comfortable when the temperature is several degrees lower than the comfortable temperature of dry air. Dry air absorbs the moisture from the skin, and the vaporization of this moisture causes a loss of heat from the body, and gives to the person a sense of cold, which is only relieved when the temperature of the room is increased. Air that is fairly saturated with moisture, say 50 to 60 per cent., will not permit of much evaporation from the skin, because there is not much demand for this moisture in the air, with a consequent feeling of comfort and warmth.

If air at a low temperature be introduced into a room, as is usual in northern localities, and afterwards heated, even though the total weight of moisture may remain unchanged, the capacity of the air for absorbing moisture will be greatly increased and its relative humidity will be greatly diminished. Therefore, with an outside temperature of 0° F., comfortably saturated, when heated some 65° to 70° indoors, the loss of relative humidity will be so great as to render it uncomfortable and injurious. Many experiments have been conducted recently, both here and in other centres, to determine the most healthful relative humidity. These have shown that with a temperature of from 65° to 68° F. and a relative humidity of from 50 to 60 per cent., the air is very comfortable and warm, and that with a temperature of 72°

and higher, and a relative humidity of 30 per cent. the air seems chilly and dry, and its slightest motion suggests a search for the source of suspected draughts. It has further been shown that during the winter months the average relative humidity in Montreal houses varies from 25 to 40 per cent., and that this low percentage of saturation so affects the linings of the nose, throat and bronchial tubes, as to cause a condition of congestion of the mucous membranes that renders them very susceptible to diseases, and especially those caused by lack of proper ventilation, thus accentuating the necessity for the introduction of fresh air.

Forced or mechanical ventilation by means of fans is out of the question in the ordinary eight or ten-room private house; the system is too expensive to install and operate. Natural agencies must, therefore, be employed, and the problem resolves itself into the question of bringing 3,000 cubic feet of fresh air per person per hour from without into the various rooms and to supply it in such a condition as to be tolerable to the inmates. This can be accomplished by two means: First, by using hot air furnaces, which not only heat the air circulating in the building, but heat as well the cold incoming fresh air for ventilation. To make this system perfect in its operation it is necessary to exhaust the air from the rooms by ducts leading into the attic and thence by means of a flue in the roof to the outside air.

The second means of natural ventilation, when steam or hot water systems of heating are used, necessitates the installation of a complete set of ducts to supply and exhaust the air from the various rooms. The fresh air is introduced into the building by means of an intake in the same way as when a hot air furnace is used, and can be heated and distributed as before. To increase the outward draught in such a system, the outlet flue can be run in the chimney stack alongside of the furnace flue; this latter keeps the former warm, thus acting as an exhaust, and where there is an extracting force at work, it necessarily follows that fresh air must come in to take the place of the foul air that has been removed.

It seems to be the popular idea that whenever there are two holes in the wall of

a room, one called the inlet and the other the outlet, that they would act as such. But this is by no means the case, and has given rise to many failures in the installation of ventilators working under natural conditions. The most effective inlets for rooms like those under consideration, that are not more than 10 or 12 feet in height, are placed near the ceiling. Their advantages over inlets placed further down on the walls are, first, that the warm air tends to rise and hence spread uniformly under the ceiling; secondly, the warm air gradually displaces the other air, without sensible draughts or currents; and, lastly, the cool air sinks to the bottom and can be taken off by a ventilating shaft.

When the inlet is placed in the floor it is a receptacle for the dust from the room and a lodging and breeding place for micro-organisms. The best results are obtained when the inlet is on the side of the room, near the top, and the outlet is on the same wall of the room, near the bottom, and towards the centre. The greater the vertical distance between the inlet and the outlet the stronger will be the draught, provided that there is a difference of temperature between the inside and outside air; and when there is no difference in temperature, that is, when the outside air is above 65°, people open their windows, which gives the maximum amount of natural ventilation. The temperature in the vertical exhaust should be kept higher than it is in the different rooms; this can be done easily by running the exhaust flue in the main stack.

I mentioned above the injurious effects caused by the drying out of the air and the very low percentage of relative humidity in the houses. To overcome this without an extravagant evaporation of water, it is necessary to introduce vapor, either direct from the steam radiators or by some of the well-known forms of humidifiers. In this manner considerable relief will be obtained, as the air will take up large quantities of the moisture; but moisture thus taken up cannot properly be said to be in the air, as it is merely suspended in a very finely divided state and will be deposited again on the first cool object with which it comes in contact.

In conclusion, let me call your attention to the fact that in most houses the air is

used again and again, constantly becoming more vitiated; it is heated in the furnace, distributed to the rooms and cooled, returned again to the furnace, reheated and again set forth on another round of a continuous circulation. If it were not that some of this leaked out through the walls and doors and fresh air rushed in to replace it, there would be much more sickness than there is even now in our homes. Let us then, all of us, no matter how small our voices may be in the community, join in a movement to work out a cheap and practicable scheme for natural ventilation with a reasonable dilution of the air, and then to see that laws are passed enforcing its

installation in all new dwellings and possibly even to urge that they might be made retro-active. This cannot be done unless we make up our minds to spend a little more money for coal, as it is impossible for us to shut ourselves up in the winter, like bears or squirrels, and maintain our health. No matter how many ducts are provided by the architect, ventilation cannot be secured, without heating a certain amount of fresh air to dilute the vitiated air already in the houses, and it is a pennywise policy in these days of preventative medical science to spend on sickness and discomfort what we save on coal bills.

PREVENTION OF SCARLET FEVER

BY ARTHUR WILSON, M.D.,

ASSISTANT COMMISSIONER OF PUBLIC HEALTH FOR SASKATCHEWAN.

Medical Science has made very little advance in the study of Scarlet Fever. Vaccination has reduced the death rate of Small-pox from 60 per cent. to less than 3 per cent. War against the mosquito has made the tropical countries habitable for white people. In America alone the educational campaign against Tuberculosis has reduced the death rate 10 per cent. in one decade. At the present time another struggle is being waged with the house-fly, and victory will constantly be evidenced in a steady decrease of such loathsome diseases as typhoid fever and infantile diarrhoea.

But little has been done in regard to Scarlet Fever. Until such times as we are able to understand fully the agent that is responsible for this infection, we shall not be able to treat the disease with any specific effect. The only means of preventing the spread of the disease is isolation of the patient, quarantining the house and a thorough disinfection of the house and all the contents. The disease will run its course with its intensity and complications lessened by a skilful treatment of the symptoms and good nursing. Therefore, what little we can do, should be attended to with the greatest possible care until such time as the laboratory shall render us further knowledge and assistance.

According to the last census (1900-1910) in the United States, Scarlet Fever caused 6,363 deaths, as compared with barely 5,000 from Appendicitis and the same number from Rheumatism. Scarlet Fever is a serious disease, not only from the standpoint of a high death-rate but on account of its attendant complications which may cause the patient to become an invalid who may contract some other malady with a fatal result.

The first duty of an attending physician after he has made his diagnosis is to *quarantine the family*. All the entrances to the house should be placarded with the regulation card, which in our province bears the printed words, "Scarlet Fever" and "Quarantine." According to our Public Health Regulations, this card can be removed only by an order from the Medical Health Officer upon the instructions of the attending physician when the patient has recovered and is free of any danger to infect others. The Medical Health Officer has the power to release the patient or not as he may see fit. The quarantine must not be raised before six weeks from the beginning of illness and can be enforced longer if the case has not completely recovered from the disease or its complications.

*Presented at the Saskatchewan Medical Association Meeting 1911, and revised for *The Public Health Journal*.

There are physicians who consider this period too long for mild cases. If the period were shortened some practitioner might take every opportunity to release his cases earlier in order to satisfy his patients and their friends. One of the greatest dangers to the public from Scarlet Fever is the mild unquarantined case. It is also a fact that there are cases which have recovered and ceased to desquamate, which after disinfection of themselves and surroundings will still give rise to infection. Many hospitals have in their experience from 2 to 4 per cent. "return" cases.

Some Medical Health Officers think that they should be permitted to use their judgment about placarding in order that people conducting a business may not be put to so much inconvenience. An amusing incident of this kind occurred in one of our western cities. A family occupied rooms over a store on one side of a hall or passage; on the opposite side a physician had his office. The family had to be quarantined and placarded for an infectious disease. After the placard had been posted a few days, the physician complained to the Medical Health Officer that the card was driving patients away from his office. The Health Officer rather ingeniously placed a screen in front of the patient's door, so that people visiting the physician could not see the placard, but in order for any person to gain entrance to the family he must read the warning. The result was satisfactory.

A threat to placard and quarantine a place of business will often induce the owner to send the patient to an isolation hospital. Should there be no such hospital in the town, then the patient should be quarantined in a private house with proper attendance.

The patient should be isolated from the rest of the family under the care of a competent nurse, immediately after diagnosis, which can be made much earlier in Scarlet Fever than in Measles if the physician has the opportunity of seeing the patient at the beginning of his illness. One, or better, two sunny bright rooms in the top story of the house should have every opening or crack sealed. All the unnecessary furniture should be removed and after a proper cleansing of the room and the contents, the patient should be placed in it.

Over the door should hang a sheet saturated with some antiseptic solution, such as bichloride or carbolic. During the fly season the windows should be screened their full length and should open at top and bottom to permit a circulation of fresh air.

The best results will be obtained in cities and towns if all cases of Scarlet Fever be sent to a contagious disease hospital where the patient is isolated under perfect medical control until such time as all danger of infection has passed. Before any such case is admitted to the hospital, however, a *swab and culture* should be taken from the throat and the results reported. The danger of a mixed infection of Diphtheria and Scarlet Fever in the wards would be lessened. Cultures should be taken at repeated intervals during the patient's illness and as soon as one is found positive to the Klebs-Loeffler bacillus, diphtheria antitoxin should be administered at once and the case isolated from the ward. A prompt course of this kind would keep the death rate lower than it is at present. Occasionally the diphtheria bacillus is found in both the virulent and non-virulent forms in healthy throats. It is, therefore, not a surprise if the mucous membrane of the throat inflamed by Scarlet Fever toxins, loses its resisting power and becomes a culture to the germ already present, increasing its virulence, and thus increasing the intensity of the disease.

In clinical practice this is found to be the case. One text gives the following statistics which proves the frequency of mixed infection:—

"Chabade, of St. Petersburg, made cultures from 214 scarletinal throats, of these 98 had a catarrh angina, 33 had a lacunar angina with a pseudo membrane in the tonsillar crypts, and 83 had a pseudo-membranous angina involving the tonsils and adjacent soft tissues. In the catarrh group no diphtheria bacilli were found but streptococci, and at times, staphylococci were present. In the lacunar angina the Klebs-Loeffler bacillus was found twice. In the pseudo-membranous cases the diphtheria organism was found eleven times, thrice almost in pure cultures, and eight cases associated with the streptococcus."

Garret and Washburn from the cultures of the throat of 66 patients treated in Lon-

don Fever Hospital from 1896-1898, found that over one per cent. showed Klebs-Loeffer bacilli on admission.

The percentage of positive throats in different epidemics varies a great deal. In the Municipal Hospital, Philadelphia, cultures were taken for the past few years from all Scarletinal patients admitted to the wards. In one series of cases, in which cultures were made after the admission of the patients to the wards, there were 167 negative results and 80 positive, or 32.35 per cent.

The "Contacts" and "Suspects" in any infectious disease play an important part in the control of the epidemic. They should receive very careful attention and be under daily observation of a physician who is not afraid to use his clinical thermometer.

Contacts may be divided into two classes:

1. Those who live in the house with the patient.

2. Those who live elsewhere, but have occasionally visited the patient's house.

The first class is the most dangerous. Our Provincial Health Regulations provide:

- a. "Adults having had Scarlet Fever should take a disinfecting bath and clothe with uninfected clothing, when they may be dismissed."

- b. "Children, if separated from the patient and there is no evidence of the disease in one week, may be given a disinfecting bath with a complete change of garments to fresh uninfected clothes and be dismissed. After three or four days more have passed without symptoms of Scarlet Fever appearing, the children may be permitted to attend school, if not staying in the infected house."

Further, adults who have not had Scarlet Fever, though less liable than children to contract it, should receive a disinfecting bath, a change of uninfected clothes and be dismissed, but always under daily observation, for at least a week. If they are careless about reporting to the physician for examination, they, too, should be quarantined for one week.

Scarlet Fever is a disease of childhood, but few adults are permanently immune.

After successfully fighting several exposures to contagion, at some unexpected occasion the adult succumbs.

Second, those who live elsewhere, but have occasionally visited the patient's house:

There names and place of residence should be noted. They should receive a disinfecting bath and change of garments to clean, uninfected clothes. Then they should be given the option of reporting daily to the physician, or going into quarantine for a week.

The Public Health Regulations of Saskatchewan require that either the householder or attending physician report a case of Scarlet Fever within twenty-four hours after the first suspicion of the disease, to the Medical Health Officer, or in case there is no Medical Health Officer, to the Commissioner. All Medical Health Officers, when notified, will report to the Commissioner within twenty-four hours. The Medical Health Officer, having reason to suspect unreported cases, shall investigate and should his suspicions be confirmed shall quarantine and report.

It is taken for granted that physicians understand that they must use the prescribed forms for reporting infectious diseases and they must keep themselves supplied with these forms by notifying the Health Department of their further needs.

A report of any contagious disease may be defined as consisting of, at least, the name of the patient, locality, the name of the disease, and date, in writing. If this information is not given it should not be considered a report. Any further details about the case are valuable, but not so essential.

In cities and towns reports might be made by telephone, followed immediately by a written report. Further, I believe it would be a good method for the city Medical Health Officer to make a routine practice of enquiring by telephone from each physician for his case reports about once or twice a week. And also, any householder in a community should be encouraged to report any suspicious cases in his vicinity. This might assist in getting more reports.

If the importance of prompt notification of infectious diseases, to the public and to the health department were properly un-

derstood, I feel certain that 99 per cent. of the physicians would report.

What would you think of a man who would stand calmly by and watch a fire start in a building without sending in an alarm to the fire department, even though he took all the means that he personally knew of to prevent the spread of destruction? His conduct is on a par with that of a physician who fails to report his infectious diseases to the Health Department.

During 1910 there were in this province 151 deaths from Typhoid Fever certified to by physicians. Dr. Hodgetts, in one of his papers, quotes Mr. Blue, the chief commissioner, as stating that "It is well recognized that mortality returns of a census are never full. They are often 10 per cent. or more below the actual deaths as verified by local registration and other sources of information. Indeed, no method of procuring mortality statistics is quite satisfactory." This being the case, our typhoid death rate should be increased 10 per cent., which would read about 166 deaths. The death rate of typhoid fever is given in one text as 8 per cent., but assuming 10 per cent., then we might expect to find reported by physicians and householders over 1,660 cases of typhoid. The actual report is 587 cases.

No public health organization can do efficient work without having full knowledge of the location of every case of infectious disease. When this information is complete then the cause can be investigated and the best means of controlling such outbreaks may be put into operation.

A simple method that has suggested itself to me for reporting to Medical Health Officers is to send by registered mail once a year, a book containing report cards of a sufficient number for an annual supply to a physician with an average practice. The report is written on each card which is separated from the stub, and mailed to the Health Department. A copy of the card is kept on the stub. The receipt form is torn from the card, stamped and returned to the physician as an acknowledgement of his report. The stub, card and receipt should bear the same number. In the Department each physician's number should be registered. The advantages of such a scheme are: That the cards are registered

to the physician who can have no excuse for not having cards; they are in a neat form; the information on the stub can be used for future reference and his receipt is an acknowledgment of his report and a protection in case of legal complications.

During a severe epidemic all public gatherings, church services, and school attendances should be prohibited. Schools should remain closed until an order is issued by the health authorities, granting them permission to re-open. During the interval the trustees should be instructed to see that the building is fumigated with formalin, cleansed and thoroughly ventilated. All contents should be thoroughly disinfected and anything that is either useless or impossible to properly disinfect should be destroyed. Outbreaks occurring in boarding schools are more serious than those in day schools, and should be treated in the same rigid manner as one would treat an outbreak in a private home.

If only one or two cases of Scarlet Fever have occurred in a school it may not be necessary to close the entire school, unless further cases develop, but there must be a daily inspection of the children by a school nurse or physician.

The school register should be examined for absentees and an investigation made into the cause of the absence in order that there may be no hidden cases. No child suffering from Scarlet Fever should be permitted to attend school for at least two months.

It would be of great advantage to the protection of the public if the teachers in the public schools had some knowledge of infectious disease and understood how to read a clinical thermometer. The early suspicion of cases and their complete isolation would thus prevent the spread of infection among the children.

These are the measures to take after Scarlet Fever has made its appearance in the school. But what can be done to prevent the occurrence of a first case of Scarlet Fever? The school should be kept clean, well lighted, ventilated, and at a proper temperature, but of equal importance it appears to me, is the personal hygiene of each pupil which will render his resisting powers or natural immunity so great that the few pathogenic germs that are always ubiquitous, will find no favorable environment

to grow and reproduce. The child's oral and nasal mucous membranes, which probably alone form the portals whereby organisms enter and cause disease, should be as healthy as possible, no decaying teeth, no adenoids, no enlarged tonsils, nor chronic inflammations of the nose and throat. There is no greater or more useful office in public health work than that filled by the medical school inspector and nurse.

Milk is a splendid culture for the most of the pathogenic organisms, and Scarlet Fever is no exception. Of 253 milk-borne epidemics collected by Trask, P. H. and Marine Hospital service, and occurring since 1895, 179 were typhoid fever; 51 were Scarlet Fever; and 23 were Diphtheria. It was thought for a long time by some authorities that possibly certain diseased conditions of the cows' teats might produce milk epidemics of Scarlet Fever. This has never been generally accepted. Every milk epidemic comes from some previous Scarlet Fever case coming in contact with the milk. Therefore, no scarletinal patient should be permitted to come in contact with milk, the production of milk, or any product of milk, for several weeks after his release from quarantine.

Milk should be delivered (as at all times) fresh and cold to the patient, in order that the number of bacteria will be few and preferably in paper containers, which may be burnt. If this is not possible the milkman should pour the milk from his vessel into the patient's vessel, taking care that nothing comes in contact with his can. There must be no exchange of vessels be-

tween the milkman and the infected house.

The housing of people must be considered in every outbreak of infectious disease. It is impossible to isolate the patient from the rest of the family in a one or two-roomed hovel. In the absence of a temporary hospital, all that can be done is to quarantine the house and permit the disease to run its course through the members of the family. It is to be hoped the day will soon come when people will live healthy happy lives midst sanitary surroundings, as Dr. Reid, P.H.O. for Nova Scotia, stated in a paper on the sanitorial treatment of tuberculosis, published in *The Public Health Journal for July, 1911* (a paper that every physician who is interested in public health work should read):

"We must make every residence a sanitarium and every factory, work-shop or office must be conducted on sanitary lines, and this is not only feasible, but the expense may be comparatively trivial."

In conclusion I would like to say that the health department renders physicians every possible assistance to prevent the spread of all infectious diseases and supply you with the most recent information available on all public health topics. In return, it is your duty to assist the health department by giving prompt notification of your infectious diseases and by observing all the laws and regulations of such a department. There must be perfect harmony between the medical profession and the public health authorities with one object in view and that object should be what is best for the public health.

NOTES FROM PRESIDENTIAL ADDRESS, 12TH ANNUAL CONVENTION CANADIAN ASSOCIATION FOR PREVENTION OF TUBERCULOSIS.

BY PROFESSOR J. GEO. ADAMI, M.D., F.R.S., MCGILL UNIVERSITY.

Apart from the mere carrying out of health regulations, the matter of Tuberculosis has to be approached from the scientific side, or more accurately from the side of applied science. It is essential, that is, for us to be sure of our cases and to make our diagnosis by the most modern

and accurate bacteriological methods, and here the university has to come to the aid of the city and the state. It used to be thought that the university did its duty if in its laboratories it trained the physician. Dr. Frank Westbrook has developed a better path. As Professor of Bacterio-

logy in the state university of Minnesota he realized the duty of the state university to the state in the matter of Hygiene. He threw his laboratory open to the State Board of Hygiene; he became an active member of the Board; he co-operated so cordially with the Board that he made the University Laboratory of Bacteriology the place in which all the State bacteriological investigations were conducted. If there was an epidemic in the state, his university staff, co-operating with the district health officers, made full bacteriological studies, and controlled the situation so far as modern science is capable. His laboratory made and supervised the distribution of sets of apparatus placed at the disposal of the medical profession throughout the state for the diagnosis of diphtheria, typhoid, tuberculosis and other communicable diseases. The University Laboratory became thus the centre from which the medical men of the state obtained expert bacteriological advice regarding their cases, and rapidly Minnesota became the model which other states have copied.

The general prevalence of tuberculosis and its appalling death rate seem to have been taken more or less as a matter of course until Koch's discovery of its specific cause, and the proof that it was a communicable disease. Even then it was some time before the medical profession and the public at large realized that it was a preventable disease, and with that realization a world-wide movement began for its suppression.

The Canadian Association for the Prevention of Tuberculosis was founded in 1900 in Ottawa under the distinguished patronage of His Excellency Earl Minto, and here is a paragraph from its constitution which will show the scope of its work:

ARTICLE II.—The object of this Association shall be to prevent the spread of Tuberculosis or Consumption by the circulation of literature, lectures; the employment of visiting nurses; the establishment of dispensaries, relief homes or sanatoria, as circumstances may require or warrant; the enforcement of the provincial laws relating to public health and promoting further legislation if necessary; and the use of any other means that may be expedient to secure the desired end.

With these objects in view our work has

been steadily progressing. This progress may be gathered in part from the report by our secretary. These annual reports grow each year, and when one realizes how much effort is required to arouse public apathy, based upon the old belief that Consumption was a hereditary disease and practically hopeless, the results of the policy laid down by our Association are certainly encouraging.

Twelve years ago there was but one institution for the Tuberculous in Canada, now there are over twenty. Then there were no dispensaries and visiting nurses; now there are over a dozen of the former and many of the latter. Lectures upon the prevention of this disease were unheard of, while now, not only are our special lecturers working in this line, but physicians and officials connected with various societies and health boards are performing this necessary work all over the Dominion. Literature is likewise being spread over the land by boards of health and local societies, as well as our own Association.

Needless to say, much that has already been done in our country towards proper provision for the tuberculous has been initiated by private philanthropy, and we can never be too grateful to those altruistic men and women who are identified with this movement.

This great movement would be far behind were it not for the philanthropy of the late Mr. Hammond, Mr. Gage, Col. Burland, Hon. Mr. Perley, Mr. Lorne McGibbon, John Ross Robertson, Mrs. Crerar and the Hon. Adam Beck, to say nothing of those who have worked so assiduously for the cause. Private philanthropy, however, is insufficient for the great task and governments and municipalities must take more of the burden upon themselves. Ontario has legislated wisely, however, in assisting local effort by grants to any county erecting institutions for the care of the tuberculous and by a maintenance grant as well. This policy is being followed by Alberta and, also, a bill is being passed in Nova Scotia along the same lines. We believe that this is a local question, and must to a large extent be handled locally.

More than two years ago it fell to me as President, at the instruction of our Executive, to forward a circular letter to

the various provincial authorities, as well as to the governing bodies of all general hospitals throughout the Dominion, upon another aspect of this question. As I have more than once pointed out at the annual meetings the great source of infection and of the spread of Tuberculosis is what technically we term the open case—the case, that is, in which the material from breaking down tubercles containing the infective bacilli is discharged into the open air; the great source of infection is therefore notably the case of advanced pulmonary or lung tuberculosis with its billions of bacilli coughed up day after day. Where the patient is well-to-do and can be afforded a separate room the danger from such a case can be largely guarded against, for it is not a little remarkable how small is the radius around the coughing and expectorating phthisical patient, beyond which experimental investigation fails to detect the bacilli. But in your impoverished family—impoverished often through the enfeeblement of the bread-winner affected with the disease—it is too often impossible to afford a separate room for the invalid. Too often other members of the family use and even sleep in the room along with the patient, and insidiously, but surely, other members of the family become infected. These are, as I say, the main foci of infection. It is these cases that inflict the greatest loss upon the community, for they perpetuate the disease. Segregate them and they become harmless. Until very recently we in Canada did little or nothing for this order of cases. Our general hospitals refused to take them in. The letter in question was an appeal for accommodation for this dangerous class of cases. The Mother Country for long years has taken care of them, and as Koch, Newsholme and others have shown, it is in consequence of the plentiful provision of workhouse and other hospitals throughout the land for such incurable cases that England enjoys her preeminence among all countries of the world in the reduction of tuberculosis mortality during the last sixty years. We urged, as an Association, that in districts in which there was no provision for the care of cases of this nature, general hospitals receiving provincial grants for their maintenance should make reasonable pro-

vision for the reception of tuberculous patients—should afford special beds or wards for the same, failing which their Government grant should be cut off. This matter, I know, has been taken into consideration in British Columbia, and has been acted upon there and in other western provinces. I was beyond measure rejoiced only last week to receive an “Act relating to Hospitals and Charitable Institutions,” passed by your Ontario Legislature during the last session, and to see that the Act contains a clause which goes even beyond what we ventured to ask for. Section 19 of that Act reads that no hospital receiving government aid shall refuse to admit and care for a patient having tubercular disease.

I shrewdly suspect that the Inspector of Public Charities of the Province, who, incidentally, is a member of our Executive, has had a hand in the framing of the new Act.

There is much that I might comment on concerning the progress of our campaign during the past twelve months—the number of new sanatoria, dispensaries and other institutes opened in various parts of the Dominion during the year; the increased participation of the Federal Government and of Provincial Governments in the work; the publication of the excellent report of the Quebec Royal Commission on Tuberculosis, the participation by Life Insurance Societies in our publicity work. This progress, however, must only stimulate us to redoubled exertion. We have had demonstrated to us in Ontario that concerted action can bring about a material reduction in the Tuberculosis mortality. That reduction of 30 per cent. in a few years, instead of making us rest on our oars, should stimulate us to redoubled effort. Let us be pleased that Ontario is the banner province—the first province in the wide Dominion to take up deliberately the modern methods of fighting the disease. But at the same time let us realize that there is still much to be accomplished. I myself have been looking forward with interest to see what Ottawa will accomplish—a city which, for the number of its inhabitants, has the fullest provision for its tuberculous cases, both early and advanced.

Having shown that the enemy can be beaten, we must advance against him with

increased enthusiasm, by frontal as well as by flank movements. There are still huge advances to be made. If one is by nature an optimist he is apt to look complacently at advances made, and to be blind to what is still defective—such, at least, looking backward, has been my attitude. I have been rejoicing in the demonstration that has been afforded during the last score of years with increasing force that tuberculosis, instead of being the hopeless disease that it used to be considered, is in the vast majority of cases curable. I have rejoiced in the work of Brehmer, Trudeau and others, which has shown how fresh air and rest and good food conquer the disease. This is so great an advance that one is apt to overlook or minimize the fact that these are but flank movements, and that the cure is both very prolonged and imperfect to this extent, that, although the lesions become encapsuled the contained bacilli are not surely killed, so that if the health and vitality of the individual be depressed it may happen that the bacilli take on growth again and the disease starts up once more. Your tuberculous individual, that is, can never under present conditions feel assured that he is out of the wood; he must always be careful of himself. We are content, that is, with imperfection.

Can we hope for nothing better, nothing more perfect?

The last few years have given us some very remarkable results in connection with another group of infections, those due to minute animal parasites. The tubercle bacillus, you will remember, is classed with the bacteria in general among the minute vegetable parasites. But with these diseases of animal origin it has for long been known that quinine kills the hæmamoeba, the parasite of malaria. Those who have had much experience in the tropics tell us that, properly administered, ipecacuanha has a like specific effect upon the amoeba of dysentery; and recently Thomas, a Canadian and graduate of McGill, has demonstrated that atoxyl, an arsenic compound, kills off the parasites of sleeping sickness circulating in the blood and the Trypanosomes, as they are termed, that set

up a series of diseases in horses and other animals; following upon which discovery Ehrlich has elaborated other arsenic compounds which in a single dose cure conditions of spirillosis, and destroy all the spirochætes in the organism.

Now, if this happens with animal parasites there is, so far as I can see, absolutely no reason why we should not discover other drugs which will have a like immediate action upon the bacteria of this disease. As a matter of fact, there is a disease which, like tuberculosis, is caused by one of the higher bacteria, by an organism closely related to the tubercle bacillus. I refer to Lumpy Jaw, or Actinomycosis, due to the Actinomyces — and this, we know, can be cured rapidly by large doses of Potassium Iodide. What we have before us is to investigate and investigate until we discover some drug or drugs which will surely cure Tuberculosis. There is still much before us physicians and bacteriologists: science in fact is never ending. And we from our side and you from yours have to continue with our shoulder to the wheel until Tuberculosis is as extinct among us, or as nearly extinct, as is that plague of old time—Leprosy.

Disraeli said: "Public health is the foundation upon which rest the happiness of the people and the power of the State. Take the most beautiful kingdom, give it intelligent and laborious citizens, prosperous manufactures, productive agriculture; let arts flourish, let architects cover the land with temples and palaces; in order to defend all these riches have first-rate weapons, fleets of torpedo boats; if the population remains stationary, if it decreases yearly in vigor and in stature, the nation must perish. And that is why I consider that the first duty of a statesman is the care of Public Health."

May we not hope that those sentiments will animate the powers that be in all our parliaments, and when they do we can assuredly look forward to the time when Tuberculosis which now takes a greater toll of human life and human activities greater than all other epidemic diseases combined, will be unknown among us, when it will be extinct as the fire among the thorns.

Editorial

INTER ALIA

The suggestion is made that every large city should consider the advisability of establishing a preventorium for its tenement children who have inherited a tendency to tuberculosis or are in danger of contracting it in their poor homes. The development of these children into healthy, efficient citizens obviously depends on the existence of some such institution; and there are few adequate shelters in the present scheme of publicly administered charity, by which the children of tuberculous parents can be cared for while the parents themselves are undergoing treatment, and while the tenement homes are being reorganized by other already established charitable agencies.

The preventorium, in short, as Dr. Herman M. Biggs, of the New York City Health Department pointed out, at the meeting in Toronto of the Canadian Association for the Prevention of Tuberculosis, is an essential link in the chain of institutions meant to curb the spread of tuberculosis.

The City of Alameda, Cal., is about to employ a unique plan to raise the standard of cleanliness in residences and business houses. In future the sanitary condition of the various premises is to be shown by placards bearing the inscription "clean," "dirty" or "filthy." Those places which do not satisfy the Board of Health will be placarded as dirty or filthy until they comply with the demands of the authorities.

It is a good idea to kill flies and keep them out of houses, especially now, when killing one fly prevents the existence of millions from it in later season. But "swatting that fly" only deals with a result and neglects its cause. This is the filth in which the fly is born and breeds. The all-important thing to do is to do away with this cause and source of flies.

The disease which flies carry would not be "inevitable," and typhoid would not commit such serious ravages among adults

if we would but take it home to ourselves that filth on our premises is the mother of the fly, as the fly is the promoter of disease. Prevention of dirty and insanitary conditions is the surest and cheapest road to exemption.

The most momentous thing that happens in this world is the coming into it of a new-born child, with all the possibilities that attend it of woe and happiness, well-being and misery. Every child is entitled, so far as we can control it, to be well-born, and, although it would be difficult at our present stage to lay down and work out anything like an intelligent system, we can do much better than we have. We can eliminate the criminal, the insane and the hopelessly diseased by inhibiting their reproduction, and we can so educate children that instead of thinking themselves bound to follow a hasty impulse or an immature fancy, they will enter upon marriage deliberately, and with a full purpose and hope, on grounds of ascertained facts, and with a knowledge of urgencies, of leaving behind them offspring which shall be mentally and physically superior to themselves. We have too long neglected the most effective and available way of uplifting the race.

The medical practitioner more than anyone else is in a position to appreciate this and to realize the results of mating of persons who are not fitted to assume the responsibility of matrimony. For years physicians, ministers, social workers and educators have worked to obtain the passage of a marriage law capable of curbing the evil of indiscriminate marriage. The practitioner's duty to the community in this regard is paramount to his obligation to the individual patient, the rule of professional secrecy regarding matters of importance to progeny being immoral because working against actual progress.

The enlistment also of the clergy is an exceptionally powerful factor in the campaign against marriage between unfit persons. The clergy argue that marriage, a

sacred religious rite, should be regarded more as a divine than a civil contract. Then what is more rational than that ministers of the gospel, representatives of the spiritual life, should be among the most active workers for better marriage laws?

If you would rob, says a recent writer on this subject, the holy marriage rite of its present capacity for permitting the infection of your sisters and daughters with loathsome diseases; if you would divest a sacred custom of its potentiality for perpetuating epilepsy and idiocy; if you would make the union of two souls synonymous with the union of two clean bodies, there must be established a custom which will permit science to stand as a faithful guardian of health and happiness for the two hearts that are drawn to each other.

The recently organized British National Health Week constitutes a movement worthy of emulation elsewhere. In Britain the medical profession, the parliament, the local authorities and a very large proportion of the educated classes have co-operated in an effort to impregnate the great mass of the people with a conscious interest in making the most of their own physical existence.

In this regard the question may be asked will the concentration of thought upon health not produce hypochondria frustrating in the long run its own endeavors? No. It is only the victim of half truths who becomes hypochondriacal, he or she who has only taken that fraction of the gospel of health which is congenial to his own moral weakness.

Professor Johnson, of the Vineland (N.J.) School for the Feeble-Minded, visited Toronto last month and came to the conclusion that Toronto should establish, as part of its school system, special classes for mentally defective, as well as backward children.—Let us beware that we do not overdo this business of classification; that we do not take as synonymous terms, "the feeble-minded" and "the waywardness of childhood." Let us continue to recognize that "*mens sana in corpore sano*" for all of us demands in its fulfilment general sanitation, the open door to larger, more restful physical health and the

placing of *each individual* in our schools normally apart rather than abnormally classed from the standpoint of education.

The recent decision of the Louisiana Supreme Court upholding the State Board of Health and the constitutionality of the sanitary code and the pure food and drug law is a victory for public health conservation.

Mercenary, grasping, selfish business interests have not scrupled in the past to enhance their gains by practices that science now acclaims to be injurious to the health of the people. With progress has come in health legislation a tendency to obstruct or nullify the movement by appealing to the courts, and setting up the crafty lawyer's usual plea that the constitutionality of the new provisions were defective. It is gratifying, therefore, to see that the Supreme Court in one part of the country at least has made this question so plain. With unfettered hands, sure of their position and backed by the courts, authorities having the laws affecting the public health to administer can, under such circumstances, go ahead more surely.

No teaching in years has left a stronger impression or caused a more general awakening of the public conscience than the Child Welfare Exhibitions being held from time to time in the various cities of the American continent. As a demonstration of the possibilities of evolution and the stage that modern philanthropy has attained through the exercise of man's higher faculties, such exhibitions are highly significant. Philanthropists and humanitarians a quarter of a century ago never dreamed of the methods which their successors have devised and are employing for the human uplift. With the growth of social problems has come the ability to handle them.

Child Welfare Shows have brought the world a long step nearer to the time when public school education, that greatest of human emancipators, will be obligatory and school buildings open as public assembly halls where the discussion of topics, and problems of public interest may be freely held. It will take time, as most things worth while do and as the greatest human achievements always have, but it will come.

CURRENT PERIODICAL COMMENT AND
WORKING NOTES

Relation of Mouth of Tuberculosis.

Tuberculosis, says Dr. William G. Ebersole of Cleveland, Ohio, in the *Dental Cosmos*, is but one of the fearful results of neglected oral conditions, of neglect of the human mouth, wherein grow and develop the media for the streptococcus and the other organisms which produce dental caries or decay of the teeth. Dental caries or decay of the teeth, is indeed the most prevalent disease known to modern civilization, and is producing greater havoc in the human family than all other diseases put together.

With healthy, well-cared-for mouths, used for their intended purpose, mankind need fear but little from the ravages of disease, but with neglected, ill-kept and improperly used mouths, mankind is today furnishing the best possible medium through which to develop all the ills and ails to which it is heir.

In the past, care and attention has been given the mouth by both the laity and the profession, with the principal thought of and view to beauty, while preservation of function and usefulness have been secondary considerations. But to-day the world is fast awakening to the important relationship which the mouth bears to mankind's health and strength as well as beauty.

Candy as a Food.

The increasing consumption of candy in this country has been the subject of considerable comment at medical meetings. According to the *New York Medical Journal*, it is generally agreed that the food value of candy is beyond dispute, and that it has a therapeutic use in certain forms of heart disease. The absence of fat, it seems, is an indication that children should not partake of it in unlimited quantities, although the only danger from eating it lies in the fact that it is often adulterated.

Cold and Colds.

The *Dietic and Hygienic Gazette* contends that notwithstanding some strenuous

contemporary effort to belittle the nomenclature of our ancestors, the name "colds" as applied to that dismal combination of sneezing, nose blowing and general wretchedness is a good one. Cold is almost invariably the primary cause of colds, while bacteria, which of late have been receiving the chief credit for these disturbances, come in secondary or tertiary sequence.

Bacteria, says the *Gazette*, swarm most abundantly in warm weather, and yet winter is the season of colds. Yes, there are summer colds, but they follow some indiscretion, such as sitting on the cold ground or lying in a relaxed state in too much intimacy with a heat extracting draft. In either of these instances fatigue may be placed first etiologically and cold second, but neither of these places can be given over to bacteria, which, thus given the opportunity to do so, finally kick up the main part of the trouble.

Cold is and always has been the greatest enemy to life. Life swarms in the tropics, but leads a sorry existence at the poles. And this reminds us of the chief arguments of all the bacteria etiologists for colds.

They will say immediately that arctic explorers do not suffer from colds until they return to civilization, when "they all come down with colds." It may be that the aiders and abettors of cold in its production of disease are absent or in abeyance in the Arctic regions, but men who go into that region become so exhausted during their prolonged exposure to cold that they are rendered upon their return to warmer regions a more than easy prey to the bacteria.

We have never read that explorers in the tropics succumbed to colds on their return to the temperate regions, even though the return is made in January.

Even the Indians knew enough to keep themselves warm and especially to guard against refrigeration of the extremities. Ben Franklin tells us how they took this precaution even in time of war when it

was too dangerous for them to have a smoking fire. They dug a pit in which they set fire to charred remains of burned trees and slept with their legs dangling in the hole. A hunter in the Canadian woods who, notwithstanding his absence from civilization, took a severe cold asked his companion, an Indian guide, how to keep from taking cold. He received the laconic reply, "Keep your feet dry."

Even an Indian, whose skin has not been so softened to the effects of colds as have ours, appreciates that cold is the antecedent of colds and takes precautions accordingly.

Undoubtedly overexposure to high temperatures may also reduce our immunity to the germs lying about. It is, however, only in cold weather that rooms are heated much above the surrounding atmosphere. Again, cold is really to blame for the results. "Bad air" is usually the result of economy in fuel. Poor ventilation is unknown in July.

An ideal room temperature for the sedentary is that between 60 and 70 degrees. Below these temperatures the heat regulating apparatus of the body finds it necessary to close up the peripheral vessels more or less, internal congestion slowly begins and the conditions for a cold are secured.

As most of us are slow to respond to the intelligence of a temperature only a few degrees lower than that for comfort, though we are less obtuse to stronger thermic impulses, the temperature between 60 and 66 degrees has been well termed the danger zone and undoubtedly more colds are acquired at these than at lower temperatures. We should be alive to our thermometer if we may coin the phrase, and respond accordingly, even at the expense of a few hodfuls of coal, for often a cold and its consequence will cost more than a ton of fuel.

Dental Examinations.

Oral Hygiene, a journal published in Indianapolis, opens a campaign to show that many diseases result from diseased teeth and gums, and to prove to life insurance companies that dental examinations of prospective policyholders are as necessary as medical examinations. Dr. Alonzo Milton Nodine, of New York, in the first of a series of articles on that question, holds that tuberculosis and pneumonia are

caused largely by germs fostered in septic mouths, and that carious teeth prevent the proper mastication of food, causing a condition that weakens the resistance of the system.

A Triumph of Science.

Only a few years ago consumption was regarded as an incurable disease. All who were afflicted with it were supposed to be marked for death, and it carried off a greater number of victims than were claimed by any other malady.

All this is changed now and in changing it the medical profession has won what is probably its greatest victory. There are various treatments that are said to secure good results, but an important part of all of them is plenty of fresh air and plenty of nourishing food. In fact it seems that fresh air and nourishing food alone are able to do the work of restoration.

Commenting on the triumph that science has achieved over tuberculosis, the *Boston Globe* shows the wonderful progress that has been made by giving the deaths per 10,000 population in Boston, New York, London, Paris and Vienna in 1881 and in 1911. The figures for New York relate only to Manhattan borough. The showing is as follows:

	1881.	1911.
Boston.	42.39	15.49
New York.	42.68	20.27
London.	22.42	13.46
Paris.	41.12	34.94
Vienna.	69.67	26.02

Thus we see that in thirty years the death rate from consumption has been cut down to much less than half its former size.

As tuberculosis is now recognized as one of the infectious diseases it is manifest that a reduction in the number of deaths from it will be followed by a constant reduction of cases. Of course, it is evident, that not more than half as many will contract it now that there are not half as many cases to contract it from it. It looks as if in the course of years the great white plague will be relegated to the list of minor ills that afflict humanity.

Every Child to His Garden!

Those few words embody a dream of mine, writes The Tatler in the *Hamilton*

Spectator, a dream that others have dreamed and built great things upon—and one that I some day—somewhere, have resolved to place upon a practical basis and watch it grow into a splendid reality.

Every child to his garden! Sounds ideal—does it not? And yet why not—every child to his garden?

And as I write by my open window, with a shaft of spring sunshine across my table, with the soft warm air quivering among the curtainfolds, and beyond a long stretch of meadow land to rest mine eyes upon, it is not of my children nor of your children that I am thinking—nay; for the “Small Boys” always have a garden if mother can arrange it so; and you—when April merges into May—you take your little people in the garden and mark each one a plot, and set your little gardeners to work—each on a garden of his very own—don't you? Yes, I am sure you do.

So you see I am not particularly thinking of your children, nor of my children as I write.

I am thinking of the little people in the alleys and by-lanes of the city streets—the children of the poor.

Often of a spring day I have walked along a dirty, narrow street where the little frame houses stand wedged together; where the backyards are spaced so that a refuse barrel may stand there and where the children play upon the streets; where they follow the water carts and duck to get a sprinkling! and when after the wagon has flushed the roadway and the water swells along the curbing on its way to the sewers the children in high glee dance about placing sticks and chips upon the eddying tide and watch their ships go down! Yes, I have often watched them so, and have felt to wondering how would it be to place their enthusiasm, their vitality to work—each in a garden of his very own.

What I mean is that every city of any size should have little gardens for the children of the poor; these should be placed upon a practical basis and the children not allowed to play therein, but rather taught how to work therein.

In every city there are vacant lots or arable land, and in every city there are boys and girls who would glory in the chance to become gardeners—boys and girls who should be given the chance.

In Chicago they have a City Gardens Association—one that was formed in 1909, the International Harvester Company offering some unused ground for the purpose of planning a “poor man's market garden” on.

This was the first attempt; since then the first “garden” has given way to many “gardens” scattered throughout Chicago. Every spring citizens of wealth become more and more interested, and are placing ground and money to the furthering of the splendid project.

The Chicago City Gardeners' Association takes charge of the ground, divides it into gardens of one-eighth of an acre, and rents each plot out for the season in consideration of the sum of \$1.50, except where families are without means. Experience has shown, however, that nearly all pay the rental if only by installments. So far the average yield per garden each season has amounted to \$25.

The society places one or more trained market gardeners in supervision over the gardens, and also provides roots, seeds and plants for each family plot. Not only are these little farms eagerly sought out by the father of the family, but “big brothers” and “big sisters” eagerly present themselves at the society's door in their effort to secure a garden of their own. And early morning finds them on their way to shop and mill spending a few moments in the garden spaces “watching things grow.” Early evening finds them there raking, spading and seeding; after school hours the children, under the head gardener, fix their individual plots, while the little house-mother, who, with such an incentive before her, has hurried her household tasks, sits in the sunshine surrounded by the babies watching her boy Tommy learn how to become a master of the land. To my way of thinking the Chicago City Gardeners' Society is doing a splendid work, and the idea is such that many a city might take it up without a thought of failure; for the children it would prove a boon; to the grown people an incentive; beside, giving practical assistance where it is needed, and at the same time making the people work for it, which is quite the sanest method after all.

“Every child to his garden”—ideal; yes; but also very practical and sane if placed upon a good basis. Don't you think so?

Religion and Sanitation.

Enlightened public opinion is the most potent force toward better public health and sanitation. Physicians will succeed in their campaign for the prevention of disease exactly in proportion to the understanding of the value of health measures by the public and its co-operation to secure them. *The Journal of the American Medical Association* comments upon the desirability of greater co-operation between physicians and churches in public health education. The Men and Religion Forward Movement, which has lately caused a nation-wide sensation, has not restricted its activities to purely religious matters.

Various social problems have been attacked; for example, a cheerful analysis of conditions in various cities has resulted in recommendations for improved sewerage and quarantine systems, protection of milk supply, organizations of health departments, better opportunities for harmless recreation, improved garbage collection, etc. In many cities excellent results followed the work. The fundamental basis was a survey of actual conditions, that is, the tabulation of all the ascertainable facts in the case before taking action. We are merely touching on the medical phases of this movement. Its chief work, of course, was religious, but the movement seemed to attack the human problem in all its ramifications—spiritual, social, physical—and to recommend improvements wherever it was thought wise. It is evident that the element of public education on health conditions is working. Great improvements in the sanitation and hygiene of the American people are due in short order as soon as the public is awakened to the possibilities.

Fight Dust by Sprinkling Oil.

"Polluted air is even more dangerous than polluted water," declares Health Commissioner Kraft, of Milwaukee, in an article on "The Contamination of Air," in the *Healthologist*.

"Health departments are continuously blamed," he continues, "for the contamination of air and water; and it is the dust in the air of cities that causes much of the trouble. The use of oil on the streets is the only method that has been effective in combating dust. We need more smoke con-

sumers or smoke preventatives, however, and we must bring the railroads to time, because they are the worst offenders, with their careless systems of burning coal.

"Students who have had experience in dissecting-room observations can testify to the fact that the lungs of coal miners are black. The lungs of men, women and children who have lived in our cities a number of years are grey, while the lungs of country people are usually a bright, healthy red.

"If smoke and dust are inhaled for a while the lungs lose their normal resilience. Thus dust is perhaps the greatest enemy of man. It irritates our most sensitive organs. It is dangerous to breathe because it predisposes the delicate structures of the nose, throat and lungs to the invasions of the debilitating forms of catarrhal affections and tuberculosis."

Reference Guide to Other Journals.

American Journal of Clinical Medicine (Vol. XIX, No. 5)—"Our Shifting Issues in Medical Ethics," by Edward A. Ayers; "Professional Tact and Business Sagacity," by J. J. Mullooney; "Universities and Their Medical Faculties," by C. Robert Tissot; "Sanatoriums for Physicians and Their Families," by T. D. Crothers.

American Journal of Public Health (Vol. II, No. 5)—"Regulation of Marriage," by J. N. Hurty; "A Method for the Bacteriological Standardization of Disinfectants," by Tatsuz, Ohno and H. C. Hamilton; "Typhoid Fever in New York City together with a Discussion of the Methods Found Serviceable in Studying its Occurrence," by Chas. F. Bolduan.

American Medicine (Vol. VII, No. 4)—"The First Woman Practitioner of Midwifery and the Care of Infants in Athens, 300 B.C.," by Gilbert Totten McMaster.

American School Board Journal (Vol. XLIV, No. 5)—"Playground Equipment," by Theo. A. Gross.

Canada Lancet (Vol. XLV, No. 9)—Lister Number.

Canadian Medical Association Journal (Vol. II, No. 5)—"Disinfection in and After Infectious Diseases," by W. L. Connell; "The Present Status of the Wassermann Reaction," by R. P. Campbell and F. S. Patch.

Canadian Municipal Journal (Vol. XII, No. 5)—"The Importance of Good Housing," by Charles A. Hodgetts.

Canadian Practitioner and Review (Vol. XXXVII, No. 5)—"Personal Recollections of Lord Lister," by John Stewart.

Canadian Teacher (Vol. XVI, No. 17)—"To Keep Young," Editorial.

Construction (Vol. V, No. 6)—"The Housing of the Working Classes," by Major Lorne Drum; "The New York Tenement House," by Henry L. Shirley.

Critic and Guide (Vol. XV, No. 5)—“The Influence of the Sex Instinct on Human Life,” by L. G.; “Sterilization of Degenerate Criminals and the Insane,” by Edwin F. Bowers.

Educational Record (Vol. XXXII, No. 5)—“The Economic Value of Nature Study,” by Wm. S. Lamb.

Fly Fighter, The—Official Organ of the Fly Fighting Committee of the American Civic Association (May number)—“Condemnation of the House Fly,” by C. Gordon Hewitt.

Fruit Magazine (Vol. V, No. 2)—“Aims and Objects of the Canadian Forestry Association,” by E. Stewart.

Indian Medical Gazette (Vol. XLVII, No. 4)—“The Specific Gravity of the Blood and Its Value in the Treatment of Cholera,” by Leonard Rogers; “Blackwater Fever in Burma,” by Lawrence G. Fink.

Journal-Lancet (Vol. XXXII, No. 9)—“The Cancer Problem,” by J. Clark Stewart; (Vol. XXXII, No. 10)—“The New Public Health—Fifth Paper,” by H. W. Hill.

Journal de Médecine et de Chirurgie (VIIe année, No. 4)—“L'enseignement médical aux universités d'Europe et d'Amérique,” par Eugene Saint-Jacques.

Journal of the Outdoor Life (Vol. IX, No. 5)—“Family Contagion in the Tuberculosis Problem,” by John F. Urie; “The Physiology of Exercise and Rest,” by Frederic S. Lee; “Lots of Water,” by Newell B. Burns.

Journal of the Royal Army Medical Corps (Vol. XVIII, No. 5)—“Cell-Inclusions in the Blood of a Case of Blackwater Fever,” by Sir William B. Leishman; “Pappataci Fever at Kamptee,” by C. H. Hale; “The Chemical Sterilization of Water for Military Purposes,” by V. Nesfield; “Observations on the Modern Coal-Tar Disinfectants as Required for Service Purposes,” by C. F. Wanhill; “Note on the New American Infantry Equipment,” by N. Dunbar Walker; “Practical Hints on Marching and Health on Active Service,” by G. Fahey.

Journal of the Royal Sanitary Institute (Vol. XXXIII, No. 4)—“A Comparison Between the Purely Aerobic and the Combined System (Anaerobic and Aerobic) of Treating a Tropical Sewage,” by W. W. Clemesha; “Some Chemical Changes Produced in Boiled and in Sterilized Milk,” by J. E. Purvis.

Journal of State Medicine (Vol. XX, No. 5)—“The Harben Lectures, 1912: The Local Specific Treatment of Infections,” by Simon Flexner; “Zur Frage der Antitoxischen Wirkung des Dysenterieserums,” von R. Kraus und St. Baecher; “The Public Health of Ireland, 1801-1911: A Historical Outline,” by D. A. Chart.

Medical Council (Vol. XVII, No. 5)—“Hermaphroditism, Pseudo-Hermaphroditism and Differentiation of Sex,” by Frank Hinehey; “The Present Status of the Roentgen Ray in the Diagnosis and Treatment of Disease,” by Mulford K. Fish-

er; “The Treatment of Disease with Bacterial Vaccine,” by Edith D. Holland; “Exposure and Germ Invasions,” by A. W. Herr; “The Unity of Disease vs. Bacteriology,” by John Brandon.

Medical Officer (No. 18, Vol. VII)—“Problems of Verminous and Unclean Children,” by J. Priestly; (No. 19, Vol. VII)—“Seasonal Prevalence of and Mortality from Infectious Diseases in the County of London,” by Sir Shirley Murphy; (No. 20, Vol. VII)—“Anti-Tuberculosis and Dispensaries in Belgium,” by Catherine Young; (No. 21, Vol. VII)—“The Control of Certain Infectious Diseases Amongst School Children,” by L. Kingsford; “The Admission of Very Young Children to Schools,” by E. W. Routley; “The Sanitary and Economic Disadvantages of Pail-Closets,” by P. Boobhyer.

Medical Review of Reviews (Vol. IX, No. 5)—“The Registration of Contagious Diseases,” editorial; “The Health of Alaska,” editorial; “An Essay on Hasheesh, Part II, concluded,” by Victor Robinson; “Sexual Morality, Past, Present and Future,” by W. J. Robinson.

Merck's Archives (Vol. XIV, No. 5)—“Drugs of Value in Typhoid Fever,” by Carroll Chase.

O. A. C. Review (Vol. XXIV, No. 8)—“The Woman on the Farm,” by Mrs. M. C. Dawson; “The Science of Living,” by Tennyson D. Jarvis; “Swimming and Life Saving,” by E. L. Davies; “The Woman on the Farm,” by Mrs. W. Buchanan.

Oral Health (Vol. II, No. 5)—“Air,” by Lyman B. Jackes.

Plumbers, Gas and Steam Fitters' Journal (Vol. XVII, No. 5)—“Are Universities Worth While?” by H. K. Bush Brown.

Prescriber (Vol. VI, No. 68)—“A Study of Specific Action of Some Drugs,” by Finley Ellingwood.

Public Health Reports (Vol. XXII, No. 17)—“Sewage-Polluted Water Supplies in Relation to Infant Mortality,” by Allan J. McLaughlin; (Vol. XXVII, No. 18)—“Organizations of a Sanitary League at Norfolk, Va.,” by C. P. Wertenbaker; (Vol. XXVII, No. 20)—“Investigations of, and Tick Eradication in, Rocky Mountain Spotted Fever,” by Thomas B. McClintic; (Vol. XXVII, No. 21)—“Examination of Excreta for Typhoid Bacilli,” by L. L. Lumsden and A. M. Stimson; “Sanitary Advice for Summer Tourists,” by W. C. Rucker; “Report of an Outbreak of Typhoid Fever at Lincoln, Neb.,” by L. L. Lumsden.

Sanitary Record (No. 1172, Vol. XLIX)—“Exmouth: A Decade of Progress in a Residential Town,” by Samuel Hutton; (No. 1173, Vol. XLIX)—“Exmouth: A Decade of Progress in a Residential Town,” by Samuel Hutton; (No. 1174, Vol. XLIX)—“Notes on Water Softening,” by John F. Meyer.

Western Medical News (Vol. IV, No. 4)—“Undergraduate Training and Requirements for License to Practise: Practice and Its Needs,” by Alexander M. McPhedran.

REVIEWS AND ACKNOWLEDGEMENTS

[Any book reviewed in this department may be obtained direct from the publishers, or from leading booksellers, or through *The Public Health Journal*]

“Fourth Report of the Wellcome Tropical Research Laboratories and Supplement to the Same.”

The two volumes together of the Fourth Report, A, Medical, and B, General Science, contain 738 pages of letter press and illustrations, many of the latter being in natural colors; the supplement contains 446 pages and 30 pages of index. The three books are beautifully bound, uniform in style and furnish both the general student and the specialist with an efficient guide to what has been accomplished in the direction of tropical disease. The functions of the Wellcome Tropical Research Laboratories, of which the books under review are the authorized reports, are (a) The study of tropical hygiene and of tropical disorders, both of man and beast, especially the communicable diseases peculiar to the Sudan; and to render assistance to the officers of health and to the clinics of the civil and military hospitals. (b) The study of plant diseases, both those due to fungi and other vegetable parasites, and those caused by insects; the study of harmful and beneficial insects, and especially of insects in their relation to tropical medicine. (c) To carry out investigations in connection with cases of poisoning, and to develop methods for the detection of the toxic agents which may be employed by the natives. (d) To carry out chemical and bacteriological tests in connection with water, food-stuffs, and other sanitary questions. (e) To make analysis or assays of minerals, ores, fuels, etc. (f) To carry out investigations in connection with agricultural and forest products or operations, and, generally speaking, of any material which may be of practical interest in the economic development of the Sudan.

The first report of the Wellcome Tropical Research Laboratories appeared in 1904 and has considerable historical and scientific value in that it describes in full the genesis of the laboratories and details the earliest results of research work in tropical medicine and allied subjects. The second report was issued in 1906 and the third in 1908, with a supplement, the whole together forming a series of volumes in-

valuable as a work of reference.—*Fourth Report of the Wellcome Tropical Research Laboratories at the Gordon Memorial College, Khartoum. Volume A, Medical, Volume B, General Science. Supplementary Volume (being second review of some of the recent advances in tropical medicine, hygiene and tropical veterinary science, following the fourth report of the Wellcome Tropical Research Laboratories), by Andrew Balfour, M.D., B.Sc., F.R.C.P., Edin., D.P.H. Cam., and Captain R. G. Archibald, M.B., R.A.M.C., in collaboration with Captain W. C. Frye, M.R.C.S., L.R.C.P., R.A.M.C., and Captain W. R. O'Farrell, L.R.C.P. and S.I., R.A.M.C. Published for the Department of Education, Sudan Government, Khartoum, by Bailliere, Tindall and Cox, 8 Henrietta St., Covent Garden, London, England. New York: The Toga Publishing Co., 35 West 33rd St. Montreal: The Toga Publishing Co., 101 Coristine Building. Vol. A, Medical, \$5.00 net; Vol. B, General Science, \$4.50 net; Supplement Vol., \$3.75 net.*

“The Home Hand Book.”

Here we have a book written in pamphlet form and professing to be a guide to the attainment of personal health as well as a simple and practical work of reference for the heads of households in all that pertains to the home. It is a short condensation of the facts of health hygiene and at the nominal price of 1d. will undoubtedly receive the large circulation wished for by the publishers, the Incorporated Institute of Hygiene.—*The Home Hand Book. London, W.: The Incorporated Institute of Hygiene, 34 Devonshire St., Harley Street, W. 1d.*

Sexual Problems of To-day.

Dr. William J. Robinson, as the editor of *The Critic and Guide* and the *American Journal of Urology*, has made himself known for his broadness and boldness of thought and clearness of expression. “Sexual Problems of To-day” is Dr. Robinson's latest and largest work, in which he deals with every phase of the sex ques-

tion, both in its individual and social aspects. He publishes, he says, this volume because he believes the world, the Anglo-Saxon world in particular, is in need of it. He asserts that only the crudest intellect and the most perverted "morality" will see anything obscene or improper in this book, basing his argument on the belief that everything that contributes to the joy, happiness, physical health, and mental and physical efficiency of the individual is pure and moral. He discusses the questions of: Sexual Disorders, Psychology of Sex, The Relation Between the Sexes, The Influence of Sexual Abstinence, The Double Standard of Morality, Reasons for Advocating the Regulation of Offspring. Regarding such regulation, he takes a stand in opposition to the Ex-President Roosevelt, believing more in quality than in quantity, his position being strongly and emphatically against laws and regulations prohibiting the giving of an accurate general knowledge of preventive measures. In this respect, he says that human beings are not animals, and that they should have a right to say how many children they should have, how frequently they will have them, and when they will have them. He believes that the cry of race suicide is a bugaboo, the parental instinct being sufficiently strong in the breast of the majority of normal people, and that the couples are rare indeed who do not wish to have at least one or two children, and this fact is well known to physicians who have seen the sorrow of wives compelled to remain sterile for physical reasons for several years after marriage. He says, further, that while there might be fewer children under proper regulation, they would be conceived at opportune periods, would be borne by their mothers with gladness and joy and brought up with care, zeal and love. Dr. Robinson is strong on this subject, and asserts, further, that it would be preferable that a girl or woman bent on illicit intercourse use a preventive than that she should haunt the offices of the abortionists, male and female—better than that they should ruin their health or kill themselves with poisonous abortifacients; better than that they should end their existence by carbolic acid or by jumping into the river. "Illicit sexual intercourse is not such a heinous crime that its punishment must be death; that is my opinion," he says. Among the remainder of the

fifty-seven chapters in this boldly interesting work are discussions on The Effect of Vasectomy on Human Sexuality, Neurasthenia Among School Teachers, The Nurse as a Focus of Venereal Infection, The Triumph of Common Sense Over Prudery in the United States Army and Navy, and the Gospel of Happiness.—*Sexual Problems of To-day.* By William J. Robinson, M.D., President, American Society of Medical Sociology; President Northern Medical Society of the City of New York; Editor of *The American Journal of Urology* and *The Critic and Guide*; Ex-President Berlin Anglo-American Medical Society; Member American Medical Association, New York State Medical Society; Medical Society of the County of New York; Harlem Medical Society; Society Moral and Sanitary Prophylaxis, etc., etc. New York: The Critic and Guide Co., 12 Mt. Morris Park, West. \$2.00.

"The Doings of the Brambles and Other Stories."

Alice Annette Larkin dedicates this book to the boys and girls who read and enjoy her stories. She writes, as one would write a letter to a friend, regarding the children one loves, stories simple and true to life; lacking, however, the romance of the fairy tale and perhaps more to be enjoyed by the grown-up than the child. The book is artistically bound, well-printed and illustrated, the illustrations seeming to be scenes in the life of the author.—*The Doings of the Brambles and Other Stories.* By Alice Annette Larkin. Boston: Mayhew Publishing Co., 92-100 Ruggles St. \$1.00.

"Modern Diagnosis and Treatment of Diseases of Children."

Dr. Hermann B. Sheffield has produced a rather unique book, in that he has filled with carefully selected photographs and illustrative notes the space usually occupied in works of this class by what he has called time-worn stereotype verbatim quotations of different authors and the customary overabundance of illustrations of fads and fancies of enterprising tradesmen. The work is written from a clinical standpoint on the medical and surgical diseases of infancy and childhood and embodies the essentials of the theory of pediatrics adapted to the needs of both the medical

student and general practitioner. The author writes from his extensive personal experience in hospital, dispensary and private practice, and in the sixteen chapters takes up as follows: Examination of the Patient; Prevention and Control of Disease; Congenital Malformations; Birth Injuries; Diseases of the Newly Born; Diseases of the Alimentary Tract; Diseases of the Liver; Diseases of the Respiratory System; Communicable Diseases; Diseases of the Heart; Diseases of the Blood and Ductless Glands; Disturbances of Metabolism; Diseases of the Nerve System; Mental Disease; Skin Diseases.—*Modern Diagnosis and Treatment of Diseases of Children: A Treatise on the Medical and Surgical Diseases of Infancy and Childhood, with Special Emphasis upon Clinical Diagnosis and Modern Therapeutics. For practitioners and students of medicine. By Hermann B. Sheffield, M.D., Instructor in Diseases of Children at the New York Post Graduate Medical School and Hospital; Visiting Physician (Diseases of Children) to the Yorkville Dispensary and Hospital for Women and Children and to the German Poliklinik; Fellow of the New York Academy of Medicine. With 150 original half-tone photo engravings and numerous small illustrations, some in colors. Philadelphia: F. A. Davis Co. \$4.50.*

“The Medical Annual.”

This is a year book of treatment and practitioner's index, and in its thirtieth year of publication. The volume before us constitutes a complete record of the year's progress, among other subjects taking up Salvarsan, with a resume of all the literature that has appeared regarding this drug, and the British National Insurance Act. The illustrations are a feature of the book. *The Medical Annual. A Year Book of Treatment and Practitioner's Index. 1912. Thirtieth year. Bristol: John Wright and Sons, Limited. Toronto: The J. F. Hartz Co., Limited. 9s. 6d.*

“Sex Hygiene for the Male.”

The author of this book carries out well his idea that a popular treatise on sexual hygiene should be at once authoritative and free from cant and quack suggestion, eliminating any recommendation as to drugging or medical self-treatment; he

means the book to aid the medical profession in combating the evils of ignorance and quackery and converting ignorant patients into intelligent ones, although it is not intended for reading by very young boys in grades below the high school. Dr. Lydston points out that the deadliest foe of progress and enlightenment is secrecy.—*Sex Hygiene for the Male and What to Say to the Boy. By G. Frank Lydston, M.D., Professor of Surgical Diseases of the Genito-Urinary Organs and Syphilology, Medical Department of State University of Illinois; Member of the American Medical Association; Member of the American Urological Association; Member of the Society of Authors of London, England; Delegate from the United States Government to the Congress for the Prevention of Infectious Diseases, Brussels, Belgium, etc., etc.; Indexed and profusely illustrated. Chicago: The Riverton Press. Cloth. \$2.25.*

“Immediate Care of the Injured.”

While the writer wishes it distinctly understood that this book is not intended to supplant the physician or surgeon, but is designed solely as a guide in emergency until the arrival of medical aid or when such aid cannot be secured, the work will be found very practical, its object being to serve as a reliable guide for those who wish to be able to render safe and efficient aid in accident and other emergencies. It is illustrated and the language is as simple as possible compatible with scientific accuracy. Part I. takes up the anatomy and physiology of the human body; Part II. considers bandages, dressings, practical remedies, etc., and Part III., accidents and emergencies. An index adds to the book's usefulness.—*The Immediate Care of the Injured. By Albert S. Morrow, A.B., M.D., Adjunct Professor of Surgery in the New York Polyclinic, Attending Surgeon to the Workhouse Hospital and to the New York Home for the Aged and Infirm. 354 pages. Second edition, thoroughly revised. Philadelphia and London: W. B. Saunders and Co. Toronto: The J. F. Hartz Co., Limited, 406 Yonge St. Cloth. \$2.50.*

“The Health Index of Children.”

Written with the idea of placing in the hands of parents and teachers a book of

facts needed for the observation of physical defects in children. "The Health Index of Children" does this in a clear, forcible and interesting manner. Part I. deals with the health index; Part II. with the child and his environment. A diagnostic table is given in Part I., followed by chapters on Nose, Throat and Ear; Defects of Vision; Defective Teeth; Contagious Disease and School Sanitation; Nervous Disorders of Children; Some General Disorders of School Children; Defects of the Feet, and Posture. The chapters in Part II. are Foods for Children; The Health of the Teacher; The Office System of School Health Departments; A General Plan for Health Supervision in Schools; Some Details of the Physician's Examinations; The Co-operation of School Health Departments with Other Agencies. Dr. Hoag finds that many places are too small to justify the expense of securing experts with a knowledge of the subject of which he writes and believes that any intelligent teacher or parent, even though he may not have had technical training, could easily learn to observe the ordinary signs and symptoms which indicate physical defects and be able to act properly with knowledge so gained. The work under review makes this possible.—*The Health Index of Children.* By Ernest Bryant Hoag, M.A., M.D., Medical Director of Berkeley Schools. Lecturer in Public Hygiene in the University of California; Member of the Royal Sanitary Institute, London. Illustrated, with prefatory note by Frank F. Bunker, Ph.B., Superintendent of Berkeley Schools, San Francisco: Whitaker and Ray-Wiggin Co.

"Essentials of Health."

"Essentials of Health" is the first of the series of text books on personal and public hygiene written by John Calvin Willis for intermediate school grades. Dr. Willis believes, and writes according to this belief, that there can be no knowledge of hygiene without a corresponding knowledge of physiology and at least a fair knowledge of anatomy. He suggests a method of study based upon observation and comparison as the only correct one for investigating scientific subjects and makes a successful effort to select only essential facts of health and develop therefrom a body of

practical health rules. The work is illustrated by colored and other plates.—*Essentials of Health. For Intermediate Grades.* By John Calvin Willis, A.M., Ph.D., M.D. New York, Cincinnati and Chicago: American Book Company. 40c.

"Elementary Physiology."

The subject of hygiene has been given a most prominent place in this work because the author understands that the chief study of the human body is to learn to live correctly. He writes for advanced grades in schools. At the end of each chapter there is an outlined summary designed as analysis of the chapter. The summary is a ready key to the material of the text and a practical lesson plan for both student and class. The outlined summary is followed by questions on the chapter. The work is practicable and written in a clear and forcible manner stating essential facts of physiology in relation to practical rules of health and dealing truthfully and interestingly with the various questions bearing on the subject, including alcohol, the effects of which both good and bad are clearly pointed out. The work is attractively illustrated and contains, besides an index, a glossary.—*Elementary Physiology, Including Hygiene, a Brief Summary of Bacteriology and an Outline of Means for Aiding the Injured and Preventing Disease.* For advanced grades. By John Calvin Willis, A.M., Ph.D., M.D., New York, Cincinnati and Chicago: American Book Company. 40c.

"Milk and the Public Health."

Dr. William G. Savage points out that his object in writing this book is to emphasize the danger that exists in milk, neither exaggerating or underrating it, but measuring and assessing the danger and then demonstrating how it may be removed or at least diminished. Part I. aims to give a summary of scientific knowledge regarding bacteriological contamination of milk and its relation to disease. Part II. takes up the subject more for the benefit of the laboratory workers; methods and procedures which may be used in examination of milk. In Part III. the subject is handled from the administrative side, and an account of the powers and procedures which are at present used and legal altera-

tions which are held to be desirable are given. It is shown that pure milk is only second in importance to non-contaminated water supply; and the author points out that the efficient control of milk supply depends upon systematic bacteriological examination. In speaking of the sterilization of milk, he believes that there is no satisfactory evidence that cooked milk is either less easily digested or less easily absorbed from the intestine than raw milk. The book consists of 459 pages, indexed and illustrated, and will be found useful to medical officers of health and to others interested in the provision of a pure milk supply.—*Milk and the Public Health.* By William G. Savage, B.Sc., M.D. (London), D.P.H., County Medical Officer of Health, Somerset; Late Medical Officer of Health and Public Analyst, Colchester; Lecturer on Bacteriology, University College, Cardiff; Assistant in Charge of the Bacteriological Department, University College, London, etc., etc. London: Macmillan and Co., Limited, St. Martin's St. 10s net.

“Ship's Hygiene.”

Dr. W. Melville Davison, as Medical Superintendent of the Booth Steamship Co., Limited, has had considerable experience in the safeguarding of the health of passengers and crews, and writes the book under consideration in a clear and forcible manner, directing its appeal primarily to the owners of steamships. In six chapters dealing consecutively with Filters, Mosquito Screening, Rats, Bugs, Cockroaches and Disinfection, he gives information which will be found most useful to all those in whose care lies this important line of sanitation.—*Some New and Interesting Points in Ships' Hygiene.* By W. Melville Davison, M.B., B.S., Medical Superintendent of the Booth Steamship Co., Limited. 87 pages. Illustrated and Indexed. Bristol: John Wright and Sons, Limited. 4/ net.

Publications Received for Later Attention

“Psychotherapy.” “The Care of the Skin and Hair.” “Health Diseases in Relation to Marriage and the Married State.” “Tuberculosis, Heredity and Environment.” “Social Problems: Their Treatment, Past, Present and Future.” “Sewage Sludge.” “Smoke, A Study of Town Air.” “Public Health Chemistry and Bacteriology.” “The Science of Hygiene.” “The Improvement of Ru-

ral Schools.” “The Public Health Law.” “Sahli's Tuberculin Treatment.” “Sewage Disposal.” “The School.” “Dr. Goodkin, Eminent English Specialist.” “Whence and Whither, or the Evolution of Life.” “Bacteria as Friends and Foes of the Dairy Farmer.” “Text Book of Hygiene for Teachers.” “The Sexual Life of Woman.” “Light Therapeutics.” Cambridge University Press: “The Coming of Evolution,” “Heredity,” “Plant Animals,” “Links with the Past,” “Wanderings of Peoples,” “Primitive Animals,” “The Moral Life,” “Prehistoric Man,” “Earthworms and Their Allies.” “Modern Methods in Nursing.”

And receipt of the following publications not mentioned elsewhere in this issue is hereby acknowledged: “The Heating and Ventilating Magazine” (Vol. IX, No. 5). “The American Journal of Urology” (Vol. VIII, No. 5). “The Educational Review” (Vol. XXV, No. 12). “The Western Municipal News” (Vol. VII, No. 5). “Public Health Bulletin of the City of Winnipeg” (Vol. II, No. 5). “Public Health Bulletin of the City of Toronto” (for May). “Monthly Bulletin, New York Department of Health” (Vol. VII, No. 4). “Toronto Civic Guild Monthly Bulletin” (Vol. I, No. 9). “Board of Trade News” (Vol. II, No. 5). “Conservation” (Vol. I, No. 3). “City Record, Official Publication of the City of Boston” (Vol. 4, No. 19). “Preliminary Report on the Housing Situation in Hamilton.” “Eleventh Annual Report of the Reading Camp Association.” “Save the Baby” (June bulletin, Fort William Board of Health). Provincial and Federal Gazettes, etc.

“How to Save the Babies.”

In sending us this pamphlet, Dr. Eugene H. Porter, Commissioner of Health for the State of New York, points out that the subject is one of the most important public health questions with which the country is confronted. He says that in New York State last year, 25,152 children died under one year of age and 10,694 between the ages of one and five. It is estimated that one-half of these children died of preventable diseases. Dr. Porter's desire is to place the pamphlet in the hands of every young mother and every expectant mother in the State and to encourage them to follow its teachings. He considers the subject of how to save the babies under the following main headings: Before the Baby Comes; When the Baby Comes; After the Baby Comes; Recipes; Directions for Prevention of Ophthalmia Neonatorum.—*How to Save the Babies: Suggestions to Mothers from the New York State Department of Health.* Eugene H. Porter, A.M., M.D., Commissioner. Written by H. L. K. Shaw, M.D., Consulting Pediatrician, and issued by the Division of Publicity and Education of the State Department of Health, Albany.

Open Mail

To the Editor, *The Public Health Journal*,
State Medicine and Sanitary Review:

The Forward Movement in Michigan for Health Conservation.

Sir,—“Education is to know for the sake of living, not to live for the sake of knowing” is the shibboleth of the Michigan State Board of Health, under the leadership of Dr. Robt. L. Dixon, Secretary.

What are we doing in Michigan? First and foremost, we are fertilizing the public sentiment to a point where it will appreciate the tremendous importance of sanitary living, and this public sentiment responding to the fertility is enforcing sanitary laws, environments, regulations. Health conservation sentiment is better than specific law, since it is a law unto itself. How are you creating sanitary sentiment? Our venture, like the Merchant of Venice, is not in one bottom, but we hope will come into the haven of good health with one cargo, sanitary environments.

In Michigan we have eighty-three counties, each county having a county commissioner of schools, who is at the head of county school interests. A plea was made to each commissioner of schools by letter asking his co-operation in establishing sanitary environments for rural schools, a pure supply of drinking water and individual drinking cup; well-ventilated school rooms, sanitary outhouses (about fifty per cent. of these are unsanitary) pleasant school grounds. The commissioners enlisted at once, and are now a co-operative committee in the work of sanitary education with the State Board of Health, and great progress has already been made in this direction.

In Michigan are one thousand granges, a membership of 70,000. Our next move was to enlist the grangers in the work of sanitary education; constrain them to see the sanitary problem through the eyes of their commissioners of schools, have a common viewpoint. The results in this phase of our forward movement have been marvelous. Many of the granges appointed a committee on health, the lecturers of the

granges incorporated health topics in their programmes. The lecturer of the State grange, Miss Jennie Buell, has prepared a special health programme for her quarterly bulletin. We have focalized the eyes of the rural folk on the dangers threatening our civilization through insanitary environments.

Our next movement was to enlist the Women's Clubs. It is unnecessary to say that the response from this great force was almost spontaneous. The sociological uplift, the appeal to mothers, the environmental value of preventive measures enlisted the warm, hearty co-operation of the guardians of home and purity.

An appeal was made to the managers of railways to co-operate with the State Board of Health in providing sanitary coaches, abolition of the common drinking cup, sanitary closets on trains and at depots, and this part of the movement is going forward successfully.

We have enlisted the United Commercial Travelers in a campaign for better environments for hotels, outdoor and indoor closets, abandonment of the common roller towel (Michigan, as yet, has no law against its use), better environments of railway depots and on railway coaches. Well, these boys are our flying squadron in sanitary education. They are getting results.

We have enlisted the newspapers in the work. We have enlisted the preachers of all the churches.

Recently there has been organized an enthusiastic, efficient, active State Health Officers' Association. This organization of the regular army of the forward movement for sanitary education.

Dr. Dixon is the manufacturer of projectiles, bulletins that call a spade a spade. Such is an outline in brief of the work for health conservation in Michigan.

“Build to-day then, strong and sure,
with a firm and ample base,
And ascending and secure
Shall to-morrow find its place.”

D. E. McClure,

Assistant Secretary, Michigan State Board
of Health.

An Opinion on Consumption.

Sir,—Dr. Savarelli's paper at the recent Rome Congress deserves the attention of every thoughtful person. It strikes a new note in the consideration of tuberculosis, and that is, the power of the healthy organism to resist deleterious bacilli.

The only real preventive medicine is to take all the measures possible to increase the sum of vitality in the organism. To ignore the influence of mind over body, as is the rule with medical orthodoxy, is a fatal mistake. The human organism is a living machine, which must be intelligently studied in all its parts. In every case of consumption there has been for a long time previous to the onset of the disease a steady decline of the vital scale. In other words, the organism was unable to generate nerve force in sufficient quantities to positively resist noxious influences.

Arthur Lovell.

London, England.

Answers to Correspondents:

Sewage Disposal for Hospital Building.

Dr. C. Howson, of Islay, Alberta, writes asking advice as to the best system of sewage disposal for a small hospital containing ten beds with a possibility of as many as twenty patients, with nurses and help. The hospital is apart from other buildings and located in a country place. The water supply is obtained from a well in basement.

We are also asked to give the approximate cost of an adequate system.

There are several methods of disposing of sewage from isolated buildings where there is no main sewerage system for the district. The adoption of any one method depends entirely upon local conditions with reference to suitability. There is no cut and dried system which can be said to meet all conditions.

In the above case the most important feature appears to be that the sewage be led for a distance away from the building in such a manner that any percolation cannot possibly affect the well in the basement, either from leakage from the sewer, or by way of the method of disposal chosen.

If a sufficient area of friable sandy soil can be found at a sufficient distance from the well with a falling gradient from the

location of the well, then such soil may be utilized for purposes of sub-irrigation. With this system, small sedimentation tanks in duplicate should be built, through which the sewage passes at a sufficiently low velocity to allow the solids to settle out. The liquid is then conveyed to the soil by means of small sub-soil drainage tile pipes and distributed under the ground surface at a depth from 1 foot 6 inches to 2 feet. Failing suitable porous land it is necessary to construct an artificial filter area composed of broken stone well drained. There are three factors relative to sewage purification which may or may not be fully demanded, depending upon local conditions. These are:

(a) Removal of solids from the sewage.

(b) Oxidation of the unstable organic compounds, which, if allowed to putrefy, cause a nuisance.

(c) Disinfection of the resultant effluent from (a) and (b) if the final liquid is to be turned into any water which is used for domestic or dairy purposes.

The factor (a) is usually dealt with by sedimentation tanks. The factor (b) by land suitable, or otherwise by artificial areas of porous material. The factor (c) by the application of a solution of chloride of lime and water to the effluent. The amount of chloride of lime required depending upon the efficiency of the factors (a) and (b). From 6 to 12 lbs. of chloride of lime per 1,000,000 lbs. of sewage may be required, presenting the proportion of from 2 to 4 parts of free chlorine per 1,000,000.

The cost of any such system for an hospital as described, depends again upon the extent of purification required and as to how far topography and local conditions lend themselves to any particular scheme.

We must advise the authorities connected with the institution, to call for the advice of an expert, or submit to him data, as follows:

Topographical map of location of the hospital showing some portion of suitable land say 300 square yards in area on to which a fall may be obtained in order to convey the sewage by gravitation.

If artificial filters are required, the tanks and filters will require about from 6 to 7 feet head between influent and effluent, for efficient operation. If suitable land is to be obtained then the head may be from 3 to 4 feet only.—*Ed.*

Meetings and Reports

[Material for this department to appear in any month should be transmitted before the 25th of the preceding month to *The Public Health Journal*, 43 Victoria St., Toronto, Canada.]

DOMESTIC

Ontario Health Districts.

The limits of the seven health districts into which the Province has been divided and the District Medical Officers of Health who are to take charge of six of them are as follows:

District 1, with headquarters at London, will include Essex, Elgin, Kent, Lambton, Middlesex, and Oxford Counties. The district M.O.H. will be Dr. D. B. Bentley, of Sarnia.

District 2, with headquarters at Palmerston, will include the Counties of Dufferin, Grey, Huron, Perth, Wellington, and Waterloo. The district M.O.H. will be Dr. T. J. McNally.

District 3, with headquarters at Hamilton, will include the Counties of Brant, Haldimand, Halton, Norfolk, Lincoln, Peel, Welland, Wentworth, and York. The district M.O.H. will be Dr. D. A. McClenahan, of Waterdown.

District 4, with headquarters at Peterboro, will include the Counties of Durham, Northumberland, Prince Edward, Hastings, Peterboro, Victoria, Muskoka, and Simcoe. Dr. George Clinton, of Belleville, will be the district M.O.H.

District 5, with headquarters at Kingston, will include the Counties of Lennox, Addington, Frontenac, Leeds, Grenville, Stormont, Dundas, Glengarry, Prescott, Russell, Carleton, Lanark, and Renfrew. Dr. Paul J. Moloney, of Cornwall, will be district M.O.H.

District 6, with headquarters at Sudbury, will include the districts of Parry Sound, Nipissing, Temiskaming, and Sudbury. The district M.O.H. has not yet been appointed.

District 7, with headquarters at Fort William, will include the districts of Manitoulin, Algoma, Kenora, Thunder Bay, and Rainy River. The district M.O.H. will be Dr. Robert E. Wodehouse, of Fort William.

The appointments date from August 1. The first thing the new officers will do will be to attend a special post-graduate course

in public health at the University of Toronto. They will be required to pass examinations at the end of that course, and their success therein will determine the length of their tenure of office.

As District Medical Officers of Health, under the new Public Health Act, which Hon. W. J. Hanna put through the Legislature last session, they will have wide powers. Their jurisdiction does not include municipalities incorporated as cities, but elsewhere they will supervise all matters affecting public health. They will direct the work of the local officers of health, and where such officers are lax in the performance of their duties, the district officer may supersede them. Where there are no local officers the district officer will act. The intention is to inaugurate a general cleaning up of all parts of the Province with a view to making it as free as humanly possible from all communicable diseases.

Canadian Army Medical Corps.

The most noticeable feature of the training of the Canadian Army Medical Corps this summer will be the camp held at London. This camp will be an entirely medical one, no other troops being present. All the Field Ambulances in Ontario and a number of medical officers will be detailed. The staff will be entirely composed of medical officers, and Colonel Jones, the Director General of Medical Services, will be in command. This camp will be from June 1st to 17th. The instruction will consist of lectures and demonstrations in all phases of army medical work; most of the time, however, will be taken up with working out the medical problems of the battlefield, commencing with a regiment in action and ending up with two divisions. The situations will be made as real as possible by a careful system of umpiring, so that the actual time taken to perform these duties will be judged by the standard of what would be required on active service. A special feature of the camp will be that,

each evening, there will be a meeting of all officers, when papers will be read and discussed; on one or two evenings this meeting will be in conjunction with the medical society of London. A somewhat similar camp on a smaller scale will be held at Farnham, for the Montreal field ambulances.

A Travelling Health Exhibit.

The public health exhibit of the Provincial Health Department of Ontario, which has attracted thousands of people in Toronto and the towns of the eastern part of the province in making an extended tour of Northern Ontario, stops first on the way north at Gravenhurst and Bracebridge. From there the exhibit will be taken to North Bay and on to Cobalt, Haileybury, New Liskeard, Englehart, and other Temiskaming towns. It will then come south to North Bay and strike west, stopping at the larger towns and winding up at Winnipeg, where it will become one of the features of the Dominion Exhibition in the fall.

Ontario Medical Association.

Following well-attended and interesting sessions of the Ontario Medical Association meeting on the twenty-first, twenty-second and twenty-third of May, Dr. Charles McGillivray, of Whitby, was elected President of the Association for the ensuing year. Dr. A. T. Shillington, of Ottawa, becomes First Vice-President; Dr. Taylor, of Goderich, Second Vice-President; Dr. W. T. Park, of Woodstock, Third Vice-President; Dr. Charles H. Hair, of Cobalt, Fourth Vice-President; Dr. F. Arnold Clarkson Secretary, and Dr. J. H. Elliott Treasurer. After the business meeting a garden party was held at the home of the retiring President, Dr. Herbert A. Bruce. The annual dinner was held at 8 o'clock. Hon. Adam Beck, the newly-elected President of the Canadian Association for the Prevention of Tuberculosis, being the guest of honor.

Toronto's First Open-Air School to Start Soon.

The month of June, which opened on Saturday, will see the first application of fresh air principles to the Public School

system of the City of Toronto. The fresh air germ has been striking its healthful roots deeper and deeper into the city's human soil in the dozen years of its development, and the results have been so beneficial in every direction that the Board of Education has put its seal of approval upon the movement by deciding to establish a fresh air school in Toronto during the three summer months. The purpose is to care for 50 school children between the ages of five and ten years, who bear the earmarks of incipient disease, and whose poverty precludes any hope of summer vacation away from the dirt and degradation of their homes. An expenditure of \$1,700 is involved. The Management Committee of the Board of Education has voted \$1,000; the Fresh Air Fund of the *Star* will contribute \$700; Manager R. J. Fleming, of the Toronto Railway Company, has extended the use of his trolley cars to the children; and Mr. H. P. Eckardt has donated the use of his private grounds at Victoria Park.

Canadian Association for the Prevention of Tuberculosis.

The twelfth annual meeting of the Canadian Association for the Prevention of Tuberculosis was held in Margaret Eaton Hall, Monday and Tuesday, 20th and 21st of May, 1912. The first day was taken up by reports from delegates, reports from the Executive Council, a paper by Dr. D. A. Craig, of Lake Edward, Que., on "The Notification of Phthisis;" the address of the President, Prof. J. G. Adami (notes of which appear on page 331 of this number); paper by Dr. F. F. Westbrook, of the University of Minnesota, on "Modern Public Health Teaching and Practice in Relation to the Control of Tuberculosis;" a paper by Mrs. Adam Shortt, Ottawa, on "Some Social Aspects of Tuberculosis" (on page 307 of this number); address of welcome by His Worship the Mayor of Toronto and a paper by Dr. Hermann M. Biggs, General Medical Health Officer of New York City, on "The Administrative Control of Tuberculosis." On the second day of the meeting a paper was read by Dr. R. C. Paterson, of St. Agathe, Que., on "The Importance of the Pre-Tubercular Stage;" followed by "The Value of the Dispensary to Public Health," by Dr. E. S. Harding,

Montreal; "The Treatment of Pulmonary Tuberculosis by Means of Graduated Labor," by Dr. Oliver Bruce, London, Ont.; and "The Care of the Patient After Leaving the Sanatorium," by Dr. C. D. Parfitt, of Gravenhurst. Reports of committees then preceded the election of officers, which resulted in: Hon. Adam Beck, President, taking the place of Prof. J. G. Adami, whom the Association has been fortunate in having for President during the past three years. Dr. George D. Porter was re-elected Secretary, and Mr. George Burn, of Ottawa, was given the office of Treasurer.

Field Marshal His Royal Highness the Governor-General, unavoidably absent from the meeting, wrote Dr. Porter, regarding this, as follows:

May 6th, 1912.

Dear Sir,—Though unable, owing to previous engagements to attend your meeting on Monday afternoon, I cannot let this occasion pass without telling you once more what I feel you must already know well enough, and that is what very great interest I take in the movement for the prevention of tuberculosis.

It is terrible to think of the ravages of this disease in the Dominion, which are quite out of proportion to the population.

The plague of tuberculosis is not one of the irresistible scourges of nature, to which we must bow as to the inevitable. The remedy and the means of prevention are known, the difficulty is to prevail upon the public to avail themselves of this knowledge, and thus protect their homes from avoidable loss of life.

I am sure the thoughts of others are often turned—as are mine—to the thousands of children who are born in Canada and who immigrate every year, and that others wonder—as I do—how many of these little ones are doomed simply from the lack of fresh air and pure milk.

I trust that the work of your Association may establish an influence on the public of Canada which will in due course militate against the ravages of tuberculosis.

Believe me,

Yours faithfully,

(Signed) *Arthur.*

Dr. Porter in the Annual Report (Twelfth) of the Executive Council, states, in part, that in reviewing the progress of the campaign against tuberculosis in Canada during the past year it will be seen that this great movement has been growing steadily over the whole Dominion. "In some localities," the Report says, "the work is being done by the societies organized for that purpose, in others by the awakened municipalities, but in those where the best results are being attained there is always co-operation between the Government, the municipality and the local societies.

"Beginning in the most westerly province we find that in British Columbia there is now legislation compelling hospitals receiving Government aid to provide for the tuberculous where other provision is not made. This should do much to educate the public in their responsibility towards this class of patients. The King Edward Sanatorium at Tranquille has now arranged that advanced cases can be accommodated in the old buildings, while the new institution is splendidly equipped for early cases.

"Alberta has taken a great step in advance during the past year. We are pleased to note that the Premier has promised legislation to assist local sanatoria to the extent of one-quarter the cost of building and 35 cents per diem per patient for maintenance. Already the Provincial Medical Council has voted \$2,500 towards this object and the probability is that in the near future there will be two institutions, one in or near Calgary and the other at Edmonton. The newly-organized society in Calgary has already provided a home for the advanced cases which is now ready for the reception of patients. A letter from His Worship the Mayor of Calgary says that the local Association 'is taking hold of the situation with a determination to make a success, and render necessary relief to those of our citizens who are victims of the disease.' The Women's Canadian Club is to be commended for its splendid work in this movement and much is due to the women of that organization for its present success.

"The Saskatchewan Government last year promised a grant of \$25,000 towards a sanatorium, providing the people would raise a similar amount. This has been

practically accomplished already by the Provincial Association with the aid of the various local societies. A splendid site has been secured in the Qu'Appelle Valley where building operations are to begin at an early date. Much educational work has also been done throughout the Province by the Bureau of Public Health.

"In Manitoba the sanatorium at Ninette is operating successfully to full capacity. In Winnipeg, they have a home for advanced cases, but purpose erecting a new one to accommodate eighty patients. A 'Trudeau' home, where tuberculosis patients may find board and lodging, is also projected. This is the first of its kind in Canada. The City Board of Health is doing a splendid work of an educational kind, and also attends to the inspection of food, etc. Altogether, Manitoba has made great advance during the past three or four years.

"In Ontario there is a steady movement throughout the Province for the proper care of the consumptive and the lessening of tuberculosis. Provincial legislation granting assistance to local sanatoria has materially aided the movement. Hamilton, Ottawa, London, St. Catharines, Kingston and Brantford, in the order named, have fallen into line and other municipalities are moving slowly but surely. That this policy is being followed by the Provinces of Nova Scotia and Alberta is good evidence of its soundness, and as pointed out in the report of the Inspector of Hospitals, 'the construction of a sanatorium in every county in Ontario would be an immense stride in the fight against tuberculosis.

"The British Parliamentary Committee recently appointed by the Chancellor of the Exchequer to guide the Government and local bodies in making or aiding provision for the treatment of tuberculosis in sanatoria or institutions or otherwise, recommends that 'the unit of area should generally be that of a county or county borough.' The National Association for the Prevention of Tuberculosis in the United States also recommends the same policy. Surely it is time for more counties to wake up to their responsibility in this matter!

"During the year a private philanthropist has donated \$50,000 for a local sanatorium in Ottawa, to complete the equip-

ment there. This will place the Capital City in an enviable position regarding the care of their tuberculous patients. The Berlin Municipal Council has purchased a house and farm which the local Anti-Tuberculosis Society purpose converting into a sanatorium. Oxford County has united with Middlesex and the Queen Alexandra Sanatorium at London will take over their patients for the time. The London Association has also started a branch dispensary in St. Thomas, as the County of Elgin has also united with them in this movement. The Brant County Association has had a beautiful site donated to them by one of Brantford's citizens upon which they are to commence at once the building of a home for advanced cases. For this purpose they have already raised more than twenty thousand dollars and the County Council has voted 25 per cent. of the cost of maintenance, while the municipality has voted the other 75 per cent. The Kingston Health Association is now erecting an institution for the care of the tuberculosis there. St. Catharines has already its institution, and Hamilton, London and Ottawa are all on a sound basis for the proper control of the situation in their respective cities. The three institutions at Gravenhurst, the Muskoka Cottage Sanatorium, the Muskoka Free, and the Minnewaska, for incipient cases; the institutions at Weston for advanced cases, and the Heather Club Pavilion for tuberculous children at the Lakeside Hospital Grounds, Toronto, complete the list for Ontario.

"There are now four dispensaries in Toronto, and the Health Department, as will be seen in the local report, has now six nurses under its control. The department attends to the disinfection of houses, examines sputum free of charge, and already has some eight hundred cases under its supervision. The medical inspection of school children is also a great step in advance. At the last session of the Ontario Legislature it was enacted that no general hospital receiving Government aid may refuse cases of tuberculosis. This will mean that where there is no special provision for the tuberculous they must be provided for by already existing hospitals. This most necessary and just legislation ought to do much to dispel the needless fear of infec-

tion from properly supervised tuberculous patients. The hopeful outlook of all this work is the decrease in the death rate from tuberculosis in this Province year by year.

"In Quebec the Report of the Royal Commission last year has had the effect of stirring up more interest in the movement. During the year there has been a successful campaign by the Hebrews for funds to open the Mount Sinai Sanatorium by Hebrews at St. Agathe. The opening of the fine new Laurentian Sanatorium also in St. Agathe and the promise of one hundred thousand dollars from a Montreal citizen toward the building of a home for advanced cases there, are the outstanding features of the year's progress. The Royal Edward Institute still continues its splendid work. The Grace Dart Home provides for a limited number of advanced cases. The Bruchesi Institute, one of the newest dispensaries, reports much work being done, and with the Press continually keeping the matter before the public as they have been doing recently, we may soon hope for great advances being made throughout the Province in the near future. (The Dispensary at Quebec, the Preventorium at St. Agathe, and the Lake Edward Sanatorium practically complete the present equipment.)

"In New Brunswick, the various local societies are doing educational work, but the Dispensary in St. John is the only institution available there for practical work. The site for a sanatorium, however, has been chosen, and it is expected that in the near future one will be erected.

"In Prince Edward Island, there is also a dispensary in Charlottetown, but no provision for the tuberculous on the island. There has been an active educational campaign throughout the Province, however, which is certain to bear good fruit in the near future.

"In Nova Scotia the steady educational work which has been going on throughout the Province for the past few years is beginning to prove its value. A Provincial delegation waiting on the Government was recently promised legislation to assist local sanatoria to the extent of one-fifth the cost of building and \$1.50 per week for each patient for maintenance. Already the Counties of Cumberland, Inverness and

Cape Breton purpose erecting institutions. The Government has also promised to enlarge and equip the institution at Kentville. The Tri-County League continues its splendid campaign of education. They have distributed 16,000 volumes of a well-written book on Tuberculosis, and are now preparing a second edition of 26,000 for free distribution. They purpose erecting a sanatorium as soon as sufficient funds are available, and Lord Stratheona has already shown his interest in the movement by a donation towards that object. Sydney and Colechester County both have active associations with visiting nurses, while the Halifax Society is making great efforts to make suitable provision for the advanced cases in that city.

"Altogether the progress of the campaign throughout Canada is very promising. Although we may have as yet but a 'five per cent. equipment,' it is far better than the 'one-half per cent.' equipment of ten years ago, and this improvement is due in a large measure to the interest created in the subject by popular education. Ten years ago there was but one institution in Canada with accommodation for less than 100 patients for the tuberculous; now there are over twenty with a total accommodation for over one thousand. Ten years ago there were but two societies in Canada, now there are over 100 local societies. Then we had no dispensaries or visiting nurses, now there are over a dozen of the former and visiting nurses in many towns and cities throughout the Dominion. Our Association has this year distributed over two hundred thousand leaflets, eight thousand annual reports in English, and two thousand five hundred in French, and we are printing and distributing leaflets in English, French, Yiddish and Galician, while we have just recently made arrangements with the insurance companies to co-operate with us in the matter of distributing literature to their policyholders. Our lecturers also still continue their work and cover a wide territory every year.

"Although this brief summary deals largely with the special agencies at work, it must not be supposed that hospitals, sanatoria and dispensaries, however necessary, are sufficient weapons against tuberculosis, for while the proper care of the tuberculous is of the utmost importance

and the segregation of advanced cases imperative, yet consumption cannot properly be controlled until we improve those conditions favoring the spread of the disease. This Association and all interested in the campaign against tuberculosis are greatly indebted, not only for the sympathy, but the practical efforts of the Imperial Order of the Daughters of the Empire throughout the Dominion. We must have pure food, water, and clean milk, proper ventilation and light in the homes, schools and workshops; and unsanitary conditions, so prevalent in many of our cities and towns, as well as on our farms, must be improved, and better housing conditions must prevail if our present great annual death rate from tuberculosis in Canada is to be materially and permanently cut down."

The Report of Committee on Resolutions follows:

Resolution I. Your committee begs to report that it has considered the matter of compulsory ventilation, urged in a communication to this Association, and that it is of the opinion that the matter is one which this Association may very well bring to the attention of all Federal, Provincial and Municipal health authorities, with a view to drawing their attention to the evils which result to all classes who, in this cold climate of Canada, are forced to have their houses closed against the fresh air unless special means are used to introduce warmed outdoor air. That ventilation methods are especially urgent is seen in the experience gained from the fresh air treatment in all cases of sickness, but especially in cases of tuberculosis. Your committee is further of the opinion that the Association may well request the Executive to appoint a special committee to deal with the more simple methods of ventilation which are applicable to houses, especially those of the smaller type and that such committee be requested to prepare simple drawings of such methods with a view to having them set forth in a short pamphlet in which illustrations applicable to such houses would be given. It further recommends that such pamphlet should direct the attention of local Boards of Health to the desirability of having such enforced by by-laws suitable to such ends.

Resolution II. Your committee begs further to report that it has considered the

very serious problem which the results of modern methods in the treatment and care of tuberculosis produce, in that a large number of cured or partially cured are forced to go back to some livelihood under conditions wholly inimical to their permanent restoration and effectiveness as wage-earners. Assuming Toronto to have one-half the population of New York, compulsory notification would show some 5,000 tubercular persons in the city. Hence to give even a small number of such cured a change to some livelihood at outdoor occupations, it is essential that some organized scheme be set on foot for the purchase by either municipal or private capital or both of suitable lands not too far removed from the city and market, for sale or lease in small parcels to carry on extensive fruit farming and horticulture on modern basis, as has been begun by the Edinburgh Anti-Tuberculosis Association, and others.

In no other way can a city so logically relieve itself of further calls upon it by such cases, should they again become a claim upon its institutions, or add so much to the economic value of the human lives, which, if saved through either humanity or as a protection to others, are, nevertheless, units in the population of the city and of Canada. Your committee would to this end suggest that the mayor and controllers of cities, officers of health, and committees of business men and social workers be organized in the large populated centres to forward such a scheme and enlist public and business capital to illustrate a work at once humanitarian and economic. Your committee would further suggest that such a committee might properly institute a scheme for the erection of homes, whether private or rented, in the suburbs, affording facilities by appropriate quarters for maintaining the health of workers who are arrested or cured cases of tuberculosis.

Resolution III. Your committee further would recommend that this Association memorialize the several Health Boards of the Province of the Dominion, pointing out that proper use is not being made of the facilities provided for free examination of sputum by the Provincial laboratories; and suggesting that arrangements be made whereby proper receptacles for forwarding specimens be placed in all drug stores and in rural communities in the post offices

where they will be available for general use; and that notice of this be distributed to all physicians and information for the public be posted at all stations.

Resolution IV. Your committee further recommends that the Government prosecute through its laboratories further experiments in connection with the inter-relationship of tuberculosis in animals and man with a view to determining the danger of infection from animal food products, particularly meat, milk, butter, cheese, eggs.

Resolution V. Your committee further recommends: (1) That laws be framed in such Provinces which have not already adopted compulsory notification of tuberculosis which will require notification of this disease. (2) That the various Provinces enact such legislation as will require municipalities, counties or combinations of counties, or districts of over a certain population (to be decided upon) to make provision for the care and supervision of such cases as may be notified; and such action be not left optional with the aforesaid municipalities. (3) That recognizing the fact that with the exercise of proper care, advanced cases of pulmonary tuberculosis or consumption may be treated in a general hospital without being a source of danger to other patients, it is deemed advisable that, wherever feasible, hospitals, receiving governmental aid, should make provision for the reception of a due proportion of such cases.

Resolution VI. Your committee further recommends that the Executive be requested to take steps to form a Women's Auxiliary Committee in the Association and that it secure and arrange co-operation with the tuberculosis committees and other public health committees of the various component societies of the National Council of Women, the Imperial Order of the Daughters of the Empire and kindred organizations among women.

Resolution VII. Your committee further recommends that the Secretary of this Association convey to the Mayor and Council of the City of Toronto the sincere thanks of this body for their courtesy and hospitality during the meeting and for the cordial greeting of their representative, Controller McCarthy, and the expression of their sympathy and co-operation in the work of this Association conveyed by him.

And, further, that our sincere thanks should be also conveyed to the President and members of the "Heather Club" for the opportunity of seeing the result of their practical interest and help in meeting one of the local problems in tuberculosis, in their Lakeside Ward for Children, and for the enjoyable entertainment provided by the Club on the occasion of our visit to that institution. And, further, that our sense of appreciation of the interest in the movement shown by the Press in general in this city by the excellent reports of the several meetings published in the several papers be also conveyed by the Secretary in an appropriate manner.

Resolution VIII. Resolved, that the time has come for the establishment by the Federal Government of a Health Department, and that it is fitting that this Association should lend its influence to help bring about this advanced step for the study of all problems of public health and of the production of disease, and for the better correlation of the several relatively isolated movements for the control and treatment of tuberculosis, and of the several matters of great hygienic importance which are factors in the production of this disease.

Thunder Bay Medical Association.

An interesting symposium of seven papers on Diagnosis and Treatment of Tuberculosis at the May, 1912, meeting of the Thunder Bay Medical Association, was introduced by Dr. Robert E. Wodehouse, M.O.H. for Ontario District No. 7. Dr. Wodehouse pointed out, in part, that the great interest being taken in this disease by federal and state governments, insurance and military circles, municipalities and collections of individuals, as well as the brainiest members of our own profession, e.g., Prof. Adami, President of the Canadian Association for its prevention, urges us locally to wake up.

Comparing sanatoria and association in Canada and the United States, Canada has: Sanatoria 26, beds in same 1,045. Clinics and dispensaries 10, and societies for prevention 78. In the United States there are: sanatoria 451 (52 not completed) beds in same 22,296 (399). Clinics and dispensaries 456, and societies for prevention 618.

If the United States has 90,000,000 population and Canada 9,000,000, our associations are as highly developed as theirs, but our own clinics, sanatoria and bed accommodation absolutely hopeless.

As to legislation, New York City two years ago solicited notification of cases by cypher without names or addresses from clinics, hospitals and doctors with success; to-day notification is compulsory with equal success. Massachusetts enforced tuberculin test for milk herds—state renumeration one-half of value to positive cows killed; it had to be dropped as state would have been bankrupt.

Canada supports the Canadian Association for Prevention of Tuberculosis by an annual grant of \$10,000. It is considering establishing a Federal Health Department with tuberculosis campaign its primary object. Ontario will have compulsory notification in 1913. Ontario statutes provide for \$350,000 expenditure annually by way of one-fifth of cost of construction of sanatoria anywhere in province, \$3 a day towards up-keep of cases in them, and \$10 a day to tuberculosis exhibit car. Fort William has tuberculosis test clause in milk by-law, has tuberculosis visiting nurse, has an Anti-Tuberculosis Association.

The results are that deaths from tuberculosis in Canada number annually 12,000 to 15,000. Germany reduced her rate 62.5 per cent. in last 20 years. England reduced her rate 50 per cent. in last 20 years. Ireland up to two years ago took no active preventive measures and her rate increased 15 per cent. in last 20 years. Newfoundland for same reason had a greater increase than Ireland. Melbourne, Australia, decreased 50 per cent. in last five years, rate being 1.3 per 1,000 living. United States (registration area) decreased 18.7 in 10 years, rate being 1.6. Ontario decreased 25.3 per cent. in last 10 years, rate being 1.02. Hamilton, 1911, annual report, showed 50 per cent. reduction in death rate in less than 10 years. Fort William rate is 1.035 per 1,000 living.

In Ontario, March and April show highest mortality. Ages 20-29 show highest rates. Ages 30-39 show next highest rates. Women 6 per cent. higher than men.

There can be no question that tuberculosis is of national interest. It is the cause of 1 in every 7 deaths. It killed off 14,000

Canadian citizens last year, half of them of mature age in prime of life. What are we going to do? Our profession should be in the lead. Our society should be active. Our individual members should assert themselves.

The Dominion Government have proven that the finest appearing cattle in our dairy herds test up 12 to 15 per cent. positive tuberculin. The Provincial Government have (as reported by Prof. Edwards) found fowl effected in nearly every county west of a line joining Lake Simcoe and Bay of Quinte. We need competent dairy, meat and food inspection. We need this profession, whose knowledge is respected, to insist that we have same. We need reporting of human cases and public education and health visiting.

1912 Convention, National Council of Women.

"I am glad to be here with these thoughtful women who discuss important public questions." These were the words of Sir George Gibbons in addressing the National Council on the last evening of its session, that of the 31st day of May; yet members of the Council did not later hesitate to admit that the many social attractions during the convention were not conducive to good business sessions.

In spite of the plea of many of the members that little work was accomplished at the Congress of the National Council and that the social features interfered with business, a great deal of important work really seems to have been accomplished and a great many interesting papers presented. The report of the Corresponding Secretary, Mrs. Willoughby Cummings, added new side-lights as to the workings of the organization. The following are a few of the matters brought before the parliament, according to Mrs. Cummings: Question of universal penny postage; a request that the Minister of the Interior favor the appointment of matrons on the Indian reserves to pass on sanitation and hygiene; a petition to enact laws regarding wife desertion and non-support and petitions for many reforms in the Criminal Code.

Among the resolutions was that the National Council of Women of Canada heartily endorses the plan of a national

committee for Canada affiliated with the International Bureau for the suppression of the white slave traffic and that the Executive be authorized to confer with the Executive Committee of the Moral and Social Reform Council of Canada for the formation of a national committee and to take further steps as shall be deemed advisable in the matter.

Another resolution was that the National Council do memorialize the Governments in the provinces where the Education Act exists to provide machinery for the enforcement of the same, so as to ensure the registration of all children of school age; the object of the resolution being to do away with illiteracy and increase the educational status of the country.

The report on the Care of the Dependent Classes dealt largely with numerous instances in which aged fathers and mothers are left as a burden upon the community. The report of the Committee on Objectionable Printed Matter demonstrated that much work had been done during the past twelve months and it was concluded that efficient guardianship over every phase of the picture shows would make picture films everywhere an educative and creative benefit. The report on Laws for the Protection of Women and Children stated that there is no Dominion legislation on the subject.

Other interesting reports were those of the Citizenship Committee; the report on Agriculture for Women; the report of the Immigration Committee; an amendment to the report, being that the National Council of Women put on record their earnest desire for a more thorough medical inspection of intending immigrants which will be made in England so far as possible in the home district and thus obviate the tragedy of immigration, the turning back of the hopeful immigrant at the journey's end. It was resolved also to ask the Government to appoint a woman on the Central Board of Immigration.

The City of Montreal was decided upon as the seat of the next convention in May, 1913. The new officers of the National Council of Women elected were as follows:

Mrs. Torrington of Toronto was elected president, and the following were chosen vice-presidents: Lady Taylor, Mrs. Thomson, Lady Laurier, Mrs. Sanford, Mrs.

Frost, Mrs. Borden, Miss Derick, M.A., Mrs. Willoughby Cummings, D.C.L.

Provincial Vice-Presidents: Miss Carmichael, Nova Scotia; Mrs. McLellan, New Brunswick; Madame Dandurand, Quebec; Mrs. Watkins, Ontario; Mrs. McEwen, Manitoba; Mrs. O. C. Edward, Alberta; Mrs. MacAuley, British Columbia.

Recording Secretary: Mrs. Plumtre, Toronto.

Treasurer: Mrs. Watt, Brantford.

Conveners of Standing Committees; Laws relating to Women and Children: Mrs. O. C. Edwards, Macleod, Alta.; Objectional Printed Matter, Mrs. Liddell, Montreal.

Custody of Feeble-minded Women: Mrs. Stead, Halifax.

Committee on Dependent Classes: Mrs. C. Scott, Vancouver.

Immigration: Miss Fitzgibbon, Toronto.

Press: Mrs. Reynolds, Toronto.

Agriculture for Women: Mrs. L. A. Hamilton, Toronto.

Citizenship: Dr. Augusta Stowe-Gullen, Toronto.

Vacation, Schools and Supervised Playgrounds: Miss Peters, Westfield, N.B.

Equal Moral Standard and Prevention of Traffic in Women: Mrs. Ada Gordon, Ottawa.

Peace and Arbitration: Mrs. Courtice, Toronto.

Public Health: Mrs. Smellie, Montreal.

Education: Miss Ritchie, Halifax.

Employments for Women: Miss Derick, Montreal.

Advertisement Committee: Mrs. Gurnett, Toronto.

Advance Notices, Alphabetical.

Canadian Business Women's Club, Toronto, June 4th, Faculty of Education Building. The object of the Club as set forth in the constitution is to foster the spirit of true patriotism among business women and to secure for its members the opportunity of hearing good lectures, etc.; to discuss the public health questions of the day and to provide social intercourse as a means of uniting them more closely.

Canadian Dental Association and Ontario Dental Society, Hamilton, Ontario, June 3-6, inclusive, 1912.

Canadian Industrial Exhibition Association, Winnipeg, July 10-20, inclusive, 1912.

Canadian Medical Association, annual meeting, Edmonton, Alta., August 10th to 14th, 1912. E. W. Archibald, M.D., General Secretary. This will be the 45th annual meeting. It is expected that the first day, being Saturday, will be devoted to

business. The scientific part of the programme will begin on Monday and occupy three days—Monday, Tuesday and Wednesday. At the conclusion of the meeting the G. T. P. offers an excursion to the famous Yellow Head Pass. While it was at first thought that one day of the meeting should be spent in Calgary, that idea has been abandoned. A visit to Calgary may precede or follow the meeting in Edmonton. Everything goes to show that a splendid programme of papers will be ready, and the proverbial hospitality of the West is shown in the numerous arrangements already made for the amusement and the comfort of the visiting members. As to the railway rates, the Standard Convention Certificate Plan will be in force from all points in Canada, that is, the rate will be single fare plus 25 cents for the return trip. Members are urged to ask from their local station agent for the Standard Convention Certificate which will be honored for ticket for return trip. It is necessary that a certain number of certificates be secured before the rate can be valid. It would be wise also to secure sleeping car reservations early. Those members who desire to go on to the coast, or return by one of the United States routes can secure summer tourist rates which are very low. The meeting in Edmonton offers an excellent opportunity to men in the East of seeing the West economically and at one of the most favorable times of the year.

Canadian National Exhibition, Toronto, August 24th to September 9th, inclusive, 1912.

Canadian Public Health Association 1912 Congress, Toronto, September 16th, 17th and 18th, inclusive, Charles J. C. O. Hastings, M.D., M.H.O., City Hall, Chairman; T. Aird Murray, M.C.S.C.E., Lumsden Building; Duncan Anderson, M.D., 28 Wellesley St., and Dr. Helen MacMurchy, 133 Bloor St. East, Secretaries, Committee for Local Arrangements; particulars later.

Child Welfare Exhibition, Montreal, October, 1912. The objects are: I. To present evidence of all the various activities—educational, religious,

charitable, philanthropic, and medical making for the improvement of conditions of child life, so that their existence and special work may be advertised, their inter-relationship may be recognized and the public be further stimulated to support and advance their endeavors; II. To show the deficiencies in public and private organizations and to suggest remedies for the same, drawn from the experience of other communities, in this way supplementing and extending the work already being accomplished; III. To correlate the endeavors of many existing associations, developing thereby a body of concerted opinion sufficiently strong and influential to bring about the needed improvements in the surroundings and upbringing of the city child. It is proposed that the Exhibition shall have the following departments: 1. The Health of the Child; 2. The Home of the Child; 3. The Education of the Child; 4. The Moral and Religious Life of the Child; 5. The Recreation of the Child; 6. City Environment and the Child; 7. The Law and the Child; 8. The Social Life of the Child; 9. The Care of the Abnormal Child; 10. Philanthropy and the Child. The Executive Secretaries are: W. H. Atherton, Ph.D., 62 Beaver Hall Hill; Tel., Up 1380; and Rev. J. O. Maurice, L.L.L., 35 Ontario, East; Tel., East 925.

Ontario Historical Society, Napanee, June 5th and 6th. C. C. James, Secretary. This will be the thirteenth annual assemblage of the twenty-one historical societies which are affiliated under the above name.

Union of Canadian Municipalities, Windsor, Ont., City Hall, twelfth annual convention, August 27th, 28th and 29th. W. D. Lighthall, Hon. Secretary-Treasurer. Some of the subjects which will receive special attention at the Convention are: The Price of Cement; Distribution of the Cost of Subways and other Railway Crossings; Water Powers in General and Georgian Bay Canal Water Powers; Uniform Municipal Statistics; Electric Franchises; Health and Mortality; Sewer System; Filtration of Drinking Water; Commission Government.

INTERNATIONAL

Town Planning Conference.

During the last week of May a very important conference was held in Boston, namely, the Town Planning Conference, which was attended by delegates from all over the continent. Assessment Commissioner Forman attended as the representative of the Toronto Board of Trade and delivered an address. The city was represented by acting City Engineer G. G. Powell.

This conference cannot fail to stimulate the cause of civic improvement in Canada, and it indicates a growing appreciation of the importance of a systematic study of civic questions. Some of the subjects dis-

cussed were: The meaning and progress of city planning; The problem of the blighted district; A more equitable distribution of the cost of public improvements; The "zoning" principle of Germany as applied to this continent; The methods of campaigning for a city plan.

Seventh International Congress on Tuberculosis.

To the seventh International Congress on Tuberculosis in Rome, there were visitors from every country in the world. Many brought their wives and daughters. Some went for pleasure, some for work. Reputations have risen and fallen at the Congress.

Again through it all there was that silent current of jealousy, inseparable from any concerted human activity even in science. Yet the purpose of this great meeting was a high one, for in the noble words of Pasteur, its object was "to extend the frontiers of life."

The International Conference preceded the Congress from April 10. It is three years since the Conference met at Washington, where a prolonged debate took place on the question of human or bovine infection being the cause of consumption. This has been the most keenly debated point in modern science, since Robert Koch, the great discoverer of the tubercle bacillus, announced in London in 1901 that the tubercle bacillus from cattle was not lethal to man. Three years ago, in Washington, he still maintained that tubercle bacilli in milk could not induce tuberculous disease in man, and he closed the discussion by moving that further research be undertaken and the results reported to the Conference at Rome. In the interval Koch has died, but we have reached finality on the main issue. Professor A. Calmette, of Lille; Dr. H. Kossel, of Heidelberg, and Professor Sims Woodhead, of Cambridge, were the international authorities chosen to report to the present Conference. On April 12 they delivered their reports, representing a vast amount of European and American research, to an open meeting of the Conference. It is now certain that Koch was both right and wrong. A small percentage of tuberculosis in childhood may be attributed to milk, and in such cases the bovine bacillus is lethal to man. On the other hand, in the vast majority of cases it is the bacillus of human tuberculosis which is the determining cause of the disease in man. Koch rightly objected to an exaggerated importance being attached to the danger of infection from the milk and meat of tuberculous cattle, as our chief activity should be directed towards preventing the infection of man by man, and more particularly the infection of children by their parents. A controversy which has lasted for more than ten years must now be regarded as closed. There is practically unanimity of opinion as to the sources of infection.

The meeting of the Conference was of very great interest, both human and scien-

tific. The Germans, who outnumbered all the other members present, did not wish to admit even the possibility of bovine infection, and were quite prepared to disregard all the English and American researches on this subject. The French, who had previously laid most stress on infection through milk, had come round to admit the greater frequency of infection from man to man. Professor Sims Woodhead, who spoke with all the authority of the British Royal Commission, met their arguments at every point, and held to the well-known results of the English investigations. It was a fortunate proposal that the Conference should adjourn, and that a private meeting of the speakers should be held behind locked doors. This took place next morning at ten o'clock, and after two hours of deliberation it was announced that a conclusion had been come to, which was satisfactory to all parties. It was agreed that the human consumptive is the principal source of infection. It was likewise agreed that the possibility of bovine infection must not be overlooked, and that greater stringency is required in regard to the conditions regulating the sale of milk. These findings have been adopted by the Congress itself. The Report of the British Commission, which was summarized by Professor Sims Woodhead, has been most favorably received. Immediately after the Conference, the American correspondents cabled that the Royal Commission Report would become the finding of the Congress. As one of them expressively put it, "the Germans were obstinate, the French hedged, the British Report was It."

The Conference heard papers on the treatment of consumption by means of tuberculin—that is, the extracted toxins of the tubercle bacillus. Nothing, however, was added to our knowledge of this agent, which was introduced by Koch in 1892. It is very strongly felt that the commercial element was too much in evidence at the Congress. There is no one cure for consumption. If the disease be diagnosed in its earliest stages then practically all cases can be cured. This is proved by the fact that 60 per cent. of the total population react to what is called the tuberculin test, and so indicate that while they were infected they did not actually develop the

disease. Now the (let us say) too keen observer sees a patient recovering under general treatment plus some ancillary remedy, and attributes the whole result to the special agent in which he is most interested. When the specific cure of consumption is announced it will be something applicable to cases which at present are rightly regarded as hopeless. Overstatement on points of treatment is indeed the great danger of scientific meetings at which the lay press is represented by laymen, for an overstatement will convey a great deal to the lay mind and very little to a scientific mind.

The women of Europe had the ear of the Conference. The great part which women have taken in certain counties of Europe in the campaign against tuberculosis was described by representative speakers. It was a woman who suggested in Sweden the little Mayflower, which has brought thousands of pounds to the aid of the anti-tuberculosis movement in Europe. Madame Boetticher (Berlin) gave an eloquent account of the work of the National Women's Association for the Prevention of Consumption in Germany, which now numbers more than half a million members. What they had done was only a beginning, but over their building at Vogelsang, in Saxony, were the words: "The hope is ours, the end is with God."

Reports were delivered to the Conference by representatives of different countries as to the progress of the anti-tuberculosis movement during the past year. From every country there was evidence of a growing interest, but there is no question that the English-speaking countries have seen the most remarkable developments.

The delegates from America were: From the United States—Dr. Henry Barton Jacobs, Baltimore, Secretary of the National Association for the Study and Prevention of Tuberculosis; Dr. Livingston Farrand, New York, Executive Secretary of the Association; Dr. Charles L. Greene, St. Paul; Dr. G. Walter Holden, Denver; Dr. Gerald B. Webb, Colorado Springs, and William H. Baldwin, Washington, all directors of the National Association. From Canada—Dr. S. Lachapelle, Montreal, and Dr. E. D. Stewart, Manitoba, accompanied by Professor J. T. McKenzie, of Toronto;

Dr. A. Rousseau, of Quebec, and Dr. A. J. Richer, of St. Agathe.

Advance Notices, Alphabetical.

American Library Association, Ottawa, Canada, June 26th and 27th, 1912.

American Public Health Association Congress Washington, D.C., September 18th, 19th and 20th, 1912—particulars later.

Baths and School Baths, International Conference on People's. Scheveningen (The Hague), last week in August. General Secretary, A. M. Douwes Dekker, The Hague.

Chambers of Commerce and Industrial and Commercial Associations, Fifth International Congress of the. Boston, Mass., September 24-28.

Chemistry, Congress on Applied. Washington, D.C., September 6-13. Secretary, Bernard C. Hesse, M.D., 25 Broad St., New York.

Congress of Hygiene and Demography, Fifteenth, Washington, D.C., September 23rd to 28th, inclusive, 1912. Dr. Joseph W. Schereschowsky, Director, Dr. John S. Fulton, Secretary General.

Farm Women, First International Congress of. Lethbridge, Alberta, October 21-25. Secretary-Treasurer, Eleanor L. Burns, Lethbridge, Alberta.

International Association of Medical Museums and International Congress of Medicine, Conjoint Meeting, London, England. August 6th to 12th, inclusive, 1913, under the patronage of His Most Gracious Majesty George V., and Presidency of Sir Thomas Barlow. Dr. N. P. Harringham, Hon. General Secretary; Dr. Thursfield and Dr. Woodwork, of St. Bartholomew's Hospital, and Dr. Kettle, of the Cancer Research Hospital, Local Secretaries.

International Congress of School Hygiene, Buffalo, N.Y., August 25th to 30th, 1913; the fourth but the first held on the American continent.

International Eugenic Congress, London, England, July 24th to 30th, 1912. Address the Hon. Secretary, 6 York Buildings, Adelphi, London, England.

International Marine Congress, Philadelphia, July, 1912. This Congress met last year in Brussels, and when the United States authorities extended an invitation to the Congress to meet in Philadelphia, 1912, they, at the same time, invited the Canadian Government to assist in carrying out the honors of the North American Continent. The party will, therefore, be taken over by the Canadian Government at Port Arthur after the Philadelphia meeting, and will go to Montreal, stopping on the way at Owen Sound, Toronto, Kingston, and other lake ports.

Labor Legislation, Association for. Zurich, Switzerland, September 10-12. Secretary, Stephen Bauer, Basel, Switzerland.

League of American Municipalities. The next convention of this league will be held in Buffalo, N.Y., and in 1913 it will likely be held in Winnipeg.

Sanitary Congress of American Countries, Fifteenth, Santiago, Chili, November, 1912. Dr. De Rio, President.

Medical Editor's Association, Atlantic City, June 1st to 3rd. Headquarters at the Marlborough-Blenheim Hotel. Dr. Thomas Steadman, Editor of the Medical Record, President. All editors

and those otherwise associated in medical journalistic work are invited to attend.

Milan Sanitary Engineering Exhibition, Milan, Italy, April to July, 1912, under patronage of the Royal Italian Society of Hygiene. To encourage and reward every progressive effort in the field of practical hygiene as applied to civil engineering and architecture.

Prison Congress. Quinquennial, London, Eng., 1915. Secretary, F. Simon Van der Aa, Groningen, Holland.

Relief, Committee on Public and Private, Lon-

don, Eng., 1915. Secretary, Charles S. Loch, Charity Organization Society, London, Eng.

School Hygiene Congress, Fourth International, Buffalo, N.Y., August 25-30, 1913. General Secretary, Dr. Thomas A. Storey, Convent Avenue and 139th St., New York.

Unemployment, International Association for Fight Against. Ghent, Belgium, 1913. American corresponding officer, John B. Andrews, 1 Madison Avenue, New York.

Women's Clubs, General Federation of. San Francisco, Cal., June 25 to July 8. Corresponding Secretary, Mrs. Frank Shiek, Wheatland, Wyo.

UNITED STATES

Smallpox and False Hair.

Warning has been sent out to the women of Colorado by the State Board of Health that they incur danger of infection from smallpox when they purchase and use the various forms of false hair that have been popular in recent years.

The Board has been engaged for some time on an investigation of the reasons for the large number of smallpox cases in the state. There were only 433 in 1908, but in 1910 they had jumped to 1,096 and in 1911 to 1,394. This increase was in the face of elaborate measures to guard the state from infection, and strict quarantine whenever a case was discovered. A surprising thing was that a large proportion of the cases were found among well-to-do persons, instead of among those whose surroundings might be assumed to subject them to danger.

In the course of its activities the Board had its attention directed to the traffic in false hair and looked up the matter. It learned that a large proportion of this commodity comes from the Chinese, and is gathered from such classes as are exposed constantly to smallpox and other diseases. Some germs have been found in hair that has been purchased and subjected to microscopical examination, and it is said that many of the recent cases of the disease might have come from such a source.

Texas to Make Serums.

Work was commenced last month by the Texas Department of Health in the construction of the State Laboratory for the manufacture of anti-toxins and serums. It is the opinion of State Health

Officer Steiner that when these preventatives are manufactured and supplied to the people at cost it will be a long step to prevent epidemics in Texas and also conserve the health of the people.

The Press as Health Medium.

At a meeting of Indiana health officials in Indianapolis, May 14 and 15, County Health Commissioner C. W. Fry emphasized the utility of the press in educating the public in the necessity of maintaining sanitary conditions. "By all means get acquainted and enlist the newspapers in behalf of public health questions," he said. "When a hungry news reporter calls you should have some live topic to give him, for without help of the public press comparatively little good can be accomplished. It is by education through the public press that we can promulgate health measures that would take tons of circular literature and much time to accomplish the same ends for good."

Inspectors to Wear Uniform.

After June 1, all inspectors of the St. Paul Health Department will appear in full uniform when on duty. The uniform is of navy blue, and the insignia of office consists of brass buttons and braid.

Violators of Pure Food Laws.

The United States District Attorney at Cleveland, O., recently ordered the arrest of 25 local manufacturers for alleged violation of the national pure food law. The crusade also extended within the Federal

district. Manufacturers of jellies, preserves, catsups, tomato pulp, mincemeat, flavoring extracts, grape juice, maple syrup, coffee essence and liquors who have been arrested will be charged either with adulteration or misbranding. Several consignments of tomato pulp have been seized in the past few weeks.

City Health Talks.

Dr. J. N. Hurty, the energetic secretary of the Indiana State Board of Health, and president of the American Public Health Association, has announced the following speakers and subjects for the proposed series of health talks to be given in Indianapolis under the auspices of the Civic League: Dr. Hannah M. Graham, "Health and Heredity"; Dr. George E. Hunt, "The Care of the Teeth"; Dr. C. S. Woods, city sanitarian, "How to Keep Children Well"; Dr. W. F. King, assistant secretary to the State Board, "The Child in School"; Dr. Hurty, "How to Have Healthy Homes."

Tubercular Tests in Factories.

Interest in the plan submitted by the Chicago Tuberculosis Institute for the Prevention of Tuberculosis in great industrial plants and adopted by many of these, is growing in Chicago. The plan consists of installing a tuberculosis clinic in large factories that will first take preventive and suppressive measures and afterward exercise an oversight of the afflicted.

Tuberculosis Raises Insurance Rates.

While State Commissions and other bodies are trying to find a method for reducing the cost of life insurance, Prof. James W. Glover, of the University of Michigan, demonstrates that every policyholder of a \$10,000 ordinary whole life policy could save about \$20.00 a year on his premiums if tuberculosis and typhoid fever were eliminated. Tuberculosis alone causes a loss to such a policyholder of from \$16.70 at age 20 to \$17.70 at age 60. At age 20, with the present high death rate from tuberculosis, this one disease alone shortens the complete expectation of life by two years and 158 days. While the death rate from tuberculosis seems to be declining, the National Association for the Study and Prevention of Tuberculosis

says that the combined effort of every man, woman and child is necessary to bring about a radical reduction in life insurance rates such as Professor Glover has indicated.

Colorado School Inspection Law.

Every child in the State of Colorado owes a debt of gratitude to Dr. Mary Elizabeth Bates, president of the Colorado Humane Education Society, and author of the Bates law providing for the examination and care of school children.

The new law provides for a physical examination to be given every pupil in the public schools during the first month of the school year and insures medical treatment for every child that is reported as defective.

Dr. Bates' law provides that the school authorities shall make every effort to discover ailments and shall see to it that the child is given treatment for them, so that it can enjoy and secure the best results from the school training. Thus it supplies care and health supervision to the child who is neglected at home.

Colorado is the fifth state of the United States to enact a compulsory examination law, and the Bates law is declared to be superior in many ways to those passed in other states.

Under the Colorado law the school principal or superintendent is required to notify the parent when any pupil is found to be mentally or morally defective as well as when he is found to be physically defective.

If the parents are too poor to pay a physician or surgeon then the county physician or surgeon shall examine and treat the child if competent to do so. If not competent he shall report the fact to the county commissioners with his recommendation, the object in so doing being to obtain for the child such treatment as its case may need through the commissioner's action.

If the parents neglect or refuse to pay attention to the notice of the child's defective condition sent by the school authorities, notice shall then be sent to the State Bureau of Child and Animal Protection, by which, it is assumed, the parents will be compelled to give due attention and relief to the child's condition.

Advance Notices, Alphabetical.

American Association for the Advancement of Science, Cleveland, Ohio, December 30, 1912, to January 4, 1913.

American Hospital Association, Detroit, September 24-27, inclusive, 1912.

American Institute of Architects, Washington, D.C., during December, 1912.

American Medical Association Meeting, Atlantic City, N.J., June 3-8, inclusive, 1912.

American Nurses' Association, Chicago, June 5-7, inclusive, 1912.

American Water Works Association, Louisville, Kentucky, June 3-8, inclusive, 1912.

American Woman's League, Second Annual Convention, St. Louis, Mo., June 20-21, 1912.

Charities, National Conference of Catholic, Washington, D.C., September 22-26. Secretary, Rev. Dr. William J. Kerby, Catholic University, Washington, D.C.

Infant Mortality, American Association for Study and Prevention of. Cleveland, Ohio, October

2-5. Executive Secretary, Gertrude B. Knipp, Medical and Chirurgical Faculty Building, 1211 Cathedral St., Baltimore, Md.

Municipal Improvements, American Society of, Dallas, Texas, November 12-16. Secretary, A. Prescott Folwell, 50 Union Square, New York.

Municipal League, Annual Meeting of the National. Los Angeles, Cal., July 8-12. Secretary, Clinton Rogers Woodruff, 121 South Broad Street, Philadelphia, Pa.

National Conference of Charities and Correction, Cleveland, Ohio, June 12-19, 1912.

National Dental Association, Washington, D.C., September 10-13, inclusive, 1912.

National Education Association, Chicago, July 6-12, inclusive, 1912.

National Irrigation Congress, Salt Lake City, Utah, July 12-27, inclusive, 1912.

Pellagra, National Association for the Study of. Columbia, S.C., October 3-4. Information may be secured from Dr. J. W. Babcock, Columbia, S.C.

Red Cross, The American. Washington, D.C., December. Secretary, Charles L. Magee, Washington, D.C.

THE EMPIRE AND THE WORLD ABROAD**Cinematograph in British Health Lectures.**

At the London Institute of Hygiene the cinematograph has been installed to assist the lecturers in their demonstrations. Sir William Bennett (President of the Institute), in formally opening the installation said it was true that in America the cinematograph had been used for the demonstration of the details of surgical operations, and somewhat indifferent pictures of germ life had been shown at a London music hall, but, in the main, instruction by that means had been merely sporadic or accidental and secondary to amusement. He believed that that installation was the first for purely educational and scientific purposes. As a means of instruction in that direction, the scope of the method was practically unlimited. Thanks to the ultra-microscope, all the details of germ life were easily demonstrated on the biograph, and many factors playing an active part in hygienic matters could be dealt with in the same way, and would be a prominent feature of the work at that institution. Illustrations of domestic science as applied to the home, matters connected with preventive medicine, and common dangers to health, such as the fly pest, would be important features.

Tropical Medicine in Australia.

The Australian Institute of Tropical Medicine in Townsville, Queensland, is in-

viting applications for three appointments, for a laboratory expert capable of taking charge in the absence of the director at £600 a year, for a second assistant at £500, with a sound knowledge of tropical hygiene and epidemiology, and for a biochemist at £400. In each case the appointment is to be tenable for five years. In connection with the Institute the Universities of Sydney, Melbourne, and Adelaide are establishing an Australian Diploma of Tropical Medicine. The work will be of general as well as of local application; it is under the supervision of a committee, on which are representatives of the Commonwealth and of Queensland, and also of the Universities of Sydney, Melbourne, Adelaide and Brisbane.

The Radium Standard.

The commission appointed by the Brussels Congress of Radiology and Electricity in 1910 to consider the question of an international radium standard has just met at the Sorbonne, under the presidency of Prof. Rutherford, and decided to adopt the standard prepared by Mme. Curie.

The international standard prepared by Mme. Curie will be kept in Paris. The Austrian standard prepared by M. Honigschmidt will remain at Vienna as a reserve, and arrangements were made for the preparation of secondary standards,

which may be acquired by Governments for their official institutes.

The commission had one difficulty to solve. It possesses no funds, and yet felt itself obliged to compensate Mme. Curie for the 22 milligrams of radium chloride which the standard required. As a milligram is worth \$120, this represented a sum of \$2,640. The sum necessary was at once offered by Dr. and Mrs. Beilby as a personal tribute to Mme. Curie and her work.

Rome Bread Served in Paper.

The municipal authorities at Rome, Italy, have decreed that no bread or rolls shall be served in restaurants until wrapped in paper with the seal of the bakery attached. The cafes have accepted the order.

The Mother and the State.

Doctor of Philosophy Helen Stoecker is bringing within reach the Shavian ideal that every mother shall be acclaimed a patriotic heroine, and endowed and cared for by a grateful nation. Through the "Bund fuer Mutterschutz," which she founded, and to-day presides over, Helen Stoecker has placed Germany first among the nations in the care of babes and sucklings; and to-day she is preparing to fight fresh battles in the hope that the thirteenth German Reichstag will embody in practical legislation the saying that the hand which rocks the cradle rules the world. The "Bund fuer Mutterschutz," or "Union for Mother-Protection," has about 4,000 members, counting among them the best men in Germany; it is influencing legislation; it is saving annually many thousands of children from miserable deaths; and it is carrying on a strong propaganda for a new marriage law, in which the interests of children shall take precedence of tradition and formal restrictions.

Advance Notices, Alphabetical.

British Medical Association, Liverpool, England, July 14th to 23rd, 1912.

Chambers of Commerce of the British Empire, London, England, June 12th, 13th and 14th.

Congress of the Universities of the Empire, London, England, July 2nd, 3rd, 4th and 5th, 1912. Fifty-one universities have arranged to send representatives; and among the questions proposed to be discussed by them are the following: Uni-

versity Organization; Universities in Their Relation to Teachers and Undergraduate Students; Universities in Their Relation to Post-graduate Research Work; Universities in Their Relation to Schools and to Agencies for Higher Education. Other subjects for discussion will probably be: Whether any Common Understanding Will Be Possible Among the Universities of the Empire as to the Extent to Which They Could Recognize Each Other's Entrance Examinations; The Desirability of Increased Facilities for Post-Graduate Study; The Possibility of Some Plan of Interchange of Professors; What Could be Done by Universities in Regard to After Careers of Students, and the whole question of the Financial Support Given from Public Sources to Universities. Inquiries with regard to the Congress should be addressed to Dr. R. D. Roberts, at the Congress Office, University of London, South Kensington, London, England.

Imperial Conference of Teachers' Associations.—London, England, July 12-16, 1912.

Royal Institute of Public Health.—The Council of the Royal Institute of Public Health have accepted an invitation from the Chief Burgomaster of Berlin to hold their 1912 Congress in that city, from Thursday, July 25th, to Sunday, July 28th, inclusive. A Local General Arrangement Committee has been formed, consisting of representatives of the Royal Ministry of the Interior, the Imperial Board of Health, the City of Berlin, the medical officers of the Headquarters Staffs of the Army and Navy, the University of Berlin, the medical and hygienic societies of Berlin, and other societies, to promote the success of the meeting. The Congress will be under the presidency of Lord Beauchamp, his Majesty's First Commissioner of Works, and will be conducted in the following sections: State Medicine, President, Sir T. Clifford Allbutt, Regius Professor of Medicine in the University of Cambridge; Bacteriology and Comparative Pathology, President, Professor G. Sims Woodhead, Professor of Pathology in the University of Cambridge; Child Study and School Hygiene, President, Sir James Crichton-Browne, Lord Chancellor's Visitor in Lunacy; Military, Colonial and Naval, President, Sir Donald Ross, Professor of Tropical Medicine in the University of Liverpool; Municipal Engineering, Architecture and Town Planning, President, Mr. P. C. Cowan, Chief Engineer of the Local Government Board, Ireland. Facilities will be afforded for visits to be made to the various public health and educational institutions in Boston and other places.

Royal Sanitary Institute, Congress and Exhibition, York, England, July 29th to August 3rd, 1912. President, Most Rev. His Grace the Lord Archbishop of York; E. White Wallis, Secretary, 90 Buckingham Palace Rd., London, England.

The Royal Sanitary Institute, Henry Saxon Snell Prize.—This prize, consisting of 50 guineas and the silver medal of the Royal Sanitary Institute is offered, 1912, for an essay on "Suggestions for Improvements in the Ventilating, Lighting, Heating and Water Supply Appliances for an Operating Room and Its Accessory Rooms of 400 Beds" (No Students). For conditions of the competition applications should be made to the Secretary of the Secretary of the Royal Sanitary Institute, 90 Buckingham Road, London, S. W., England.